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**FEDERAL FACILITY AGREEMENT
FOR THE
PADUCAH GASEOUS DIFFUSION PLANT**

I-02001-0205



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**FEDERAL FACILITY AGREEMENT
FOR THE
PADUCAH GASEOUS DIFFUSION PLANT**

ASSIGNED TO: EMEF DMC PAD--Bechtel Jacobs Co. Paducah

MANUAL NO: 36

Each person to whom a manual is assigned shall maintain in it in proper order, inserting new or revised pages immediately upon their receipt. All changes, additions, and deletions to the distribution of this manual must be sent by written memo to the Paducah Project Execution Facilities and S&M Manager, Kevil, Paducah Gaseous Diffusion Plant. When the manual holder transfers or terminates, or when the manual is no longer needed, it should be returned to the above-mentioned person.

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FOR THE
PADUCAH GASEOUS DIFFUSION PLANT**

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YPO GELUCHT

YPO GELUCHT

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THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV

AND

THE UNITED STATES DEPARTMENT OF ENERGY

AND

THE KENTUCKY NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
CABINET

IN THE MATTER OF:)	
)	
The U. S. Department)	FEDERAL FACILITY AGREEMENT
of Energy's)	UNDER SECTION 120 OF CERCLA
)	AND SECTIONS 3004(u), 3004(v)
)	AND 6001 OF RCRA, AND KRS
PADUCAH GASEOUS DIFFUSION PLANT)	224 SUBCHAPTER 46
)	
_____)	Docket No.

Based upon the information available to the Parties on the effective date of this FEDERAL FACILITY AGREEMENT (Agreement), and without trial or adjudication of any issues of fact or law, the Parties agree as follows:

INTRODUCTION

This Agreement directs the comprehensive remediation of the Paducah Gaseous Diffusion Plant (PGDP). It contains requirements for: (1) implementing investigations of known or potential releases of hazardous substances, pollutants or contaminants, or hazardous wastes or hazardous constituents, (2) selection and implementation of appropriate remedial and removal actions, and (3) establishing priorities for action and development of

schedules, consistent with the established priorities, goals and objectives of this Agreement. This Agreement delineates the relationship between its requirements and the requirements for corrective measures being conducted under Sections 3004(u) and 3004(v) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6924(u) and 6924(v), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), and KRS 224 Chapter 46, according to the conditions of PGDP's Federal Environmental Protection Agency RCRA Permit (the "HSWA" Permit) and Kentucky's Hazardous Waste Permit (collectively, the "RCRA Permits") and actions taken in accordance with a certain Administrative Consent Order dated November 23, 1988, (the "ACO"), pursuant to Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9620(e)(1), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499. It incorporates the site investigation process as begun at PGDP in accordance with the ACO issued November 1988 and the RCRA Permits, and addresses those releases included in the RCRA Permits and any newly discovered releases at or from units not identified in the RCRA Permits. This Agreement sets forth the CERCLA requirements to address releases of hazardous or radioactive substances or both not specifically regulated by RCRA and/or KRS 224 Chapter 46.

This Agreement governs the corrective/remedial action process from site investigation through site remediation and

describes procedures for the Parties to set annual work priorities (including schedules and deadlines) for that process. The Parties will coordinate the administrative and public participation processes prescribed by the various statutes (e.g., RCRA and CERCLA) governing the corrective/remedial action process at PGDP. Upon execution of this Agreement, the CERCLA ACO shall be terminated and the Parties agree that all DOE obligations and actions required by the CERCLA ACO are satisfied and complete.

This Agreement also consists of Appendices A through G. In the event of any inconsistency between this Agreement and its Appendices, this Agreement shall govern unless and until modified under Section XXXIX (Modification of Agreement) of this Agreement.

I. JURISDICTION

A. Each Party is entering into this Agreement pursuant to the following authorities:

1. The U. S. Environmental Protection Agency (EPA), Region IV, enters into those portions of this Agreement that relate to: (1) the remedial investigation/feasibility study (RI/FS) pursuant to Section 120(e)(1) of CERCLA; (2) the RCRA Facility Investigation/Corrective Measures Study (RFI/CMS) pursuant to RCRA Sections 3004(u), 3004(v), 3008(h) and 6001, 42 U.S.C. §§ 6924(u), 6924(v), 6428(h), and 6961;

2. EPA enters into those portions of this Agreement

that relate to: (1) interim and final remedial actions pursuant to Section 120(e)(2) of CERCLA; and (2) corrective measures implementation, including interim measures, pursuant to Sections 3004(u), 3004(v), 3008(h) and 6001 of RCRA;

3. The U. S. Department of Energy (DOE) enters into those portions of this Agreement that relate to: (1) the RI/FS pursuant to Section 120(e)(1) of CERCLA; (2) the RFI/CMS pursuant to Sections 3004(u), 3004(v), 3008(h) and 6001 of RCRA; (3) the National Environmental Policy Act, 42 U.S.C. § 4321; and (4) the Atomic Energy Act of 1954 (AEA), as amended, 42 U.S.C. § 2201;

4. DOE enters into those portions of this Agreement that relate to: (1) interim and final remedial actions pursuant to Section 120(e)(2) of CERCLA; (2) corrective measures implementation, including interim measures, pursuant to Sections 3004(u), 3004(v), 3008(h) and 6001 of RCRA; and (3) the AEA;

5. DOE will take all necessary actions in order to fully effectuate the terms of this Agreement, including undertaking response actions on the Site (as such term is hereinafter defined) in accordance with laws, standards, limitations, criteria, and requirements under Federal or Kentucky law to the extent consistent with CERCLA, RCRA and KRS 224 Chapter 46.

6. The Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) enters into this Agreement pursuant to Sections 107, 120(f) and 121(f) of CERCLA; Section 3006 of

RCRA and the Kentucky Revised Statutes Sections 224.46-530 and 224.10-100. On April 26, 1996 at 61 Fed. Reg. 18,504, EPA, pursuant to RCRA Section 3006, gave Kentucky final authorization, effective June 25, 1996, to administer the Corrective Action portions of HSWA, specifically including 42 U.S.C. § 6924(u) and (v).

B. The National Priorities List (NPL) is promulgated under Section 105 of CERCLA, 42 U.S.C. § 9605 and at 40 C.F.R. Part 300. The Paducah Site was included by EPA on the Federal Agency Hazardous Waste Compliance Docket established under Section 120 of CERCLA, 42 U.S.C. § 9620, (See Federal Register February 12, 1988). EPA Region IV has evaluated the Paducah Site for inclusion on the NPL. The site was proposed for inclusion on the NPL in Federal Register May 10, 1993. The Site was listed on the NPL on May 31, 1994 at 59 Fed. Reg. 27,989. The Parties intend that this Agreement shall satisfy the requirements for an interagency agreement under Section 120 of CERCLA, 42 U.S.C. § 9620, for the Paducah Site.

II. DEFINITIONS

Except as provided below or otherwise explicitly stated in this Agreement, the definitions provided in CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 (hereinafter the National Contingency Plan or

NCP) and RCRA and its implementing regulations, as they may be amended, shall control the meaning of the terms used in this Agreement unless such terms are otherwise modified by the Parties. This Agreement references documents and terms required by DOE's RCRA Permits. Appendix A to this Agreement identifies those documents and their CERCLA equivalents. For the purposes of this Agreement and the work required herein, any and all references to the documents or terms identified in Appendix A shall use the CERCLA terminology to simplify use of terms (e.g.,: any reference to an RI shall also include a reference to an RFI).

In addition, the following definitions are used for purposes of this Agreement.

A. Additional Work shall mean any work agreed upon by the Parties under Section XIX (Additional Work) to this Agreement.

B. Atomic Energy Act (AEA) shall mean the Atomic Energy Act of 1954, as amended, 42 U.S.C. §§ 2011, et seq.

C. Agreement shall mean this document and shall include all Appendices to this document referred to herein. All such Appendices shall be enforceable in accordance with Section XLIV (Enforceability) of this Agreement.

D. Applicable Kentucky Laws shall include but not be limited to all laws determined to be applicable or relevant and appropriate requirements (ARARs) as described in Section 121(d) of CERCLA, 42 U.S.C. § 9621(d). It is recognized that in some

instances in which this phrase is used, there may be no applicable Kentucky laws.

E. ARAR(s) shall mean "legally applicable" or "relevant and appropriate", standards, requirements, criteria, or limitations as those terms are used in Section 121(d)(2)(A) of CERCLA, 42 U.S.C. § 9621(d)(2)(A).

F. Areas of Concern (AOC) shall include any area having a probable or known release of a hazardous waste, hazardous constituent or hazardous substance which is not from a solid waste management unit and which poses a current or potential threat to human health or the environment. Such areas of concern may require investigations and remedial action, in accordance with the requirements of this Agreement.

G. Authorized Representatives shall mean a Party's employees, agents, successors, assigns, and contractors acting in any capacity, including an advisor capacity, when so designated by that Party.

H. CERCLA shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9601, et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499.

I. Corrective Action shall mean those actions necessary to correct releases to all media from all Solid Waste Management Units and/or AOCs at RCRA facilities. Corrective Action consists

primarily of four steps: the RCRA Facility Assessment, the RCRA Facility Investigation, the Corrective Measures Study, and the Corrective Measures Implementation (including interim measures). For the purposes of this Agreement, the term Corrective Action shall be equivalent to the terms Respond, Response or Response Action.

J. Corrective Measures Implementation (CMI) shall mean the design, construction, operation, maintenance, and monitoring of selected corrective measures. For the purposes of this Agreement, the CMI shall meet the requirements of RCRA, the corrective action requirements of KRS 224 SubChapter 46, their implementing regulations and the RCRA Permits, and shall be equivalent to the Remedial Design/Remedial Action.

K. Corrective Measures Study (CMS) shall mean the study or report identifying and recommending, as appropriate, specific corrective measures that will correct the release(s) identified during the RCRA Facility Investigation. For the purposes of this Agreement, the CMS shall be equivalent to the Feasibility Study.

L. Days shall mean calendar days, unless business days are specified. Any submittal or written statement of dispute that, under the terms of this Agreement, would be due on a Saturday, Sunday, or holiday shall be due on the following business day:

M. DOE shall mean the United States Department of Energy and its authorized representatives.

N. Draft (D1) Primary Document shall mean the first draft of a report or work plan issued by DOE for any primary document listed in Section XX.C.1 and transmitted to EPA and KNREPC for review and comment under Section XX (Review/Comment On Draft/Primary Documents) of this Agreement except for RODs and IM Reports. The first draft of RODs and IM Reports shall represent the Draft-Final (D2) Primary Document.

O. Draft-Final (D2) Primary Document shall mean the revised draft report or work plan issued by DOE for any primary document listed in Section XX.C.1 (Review/Comment On Draft/Primary Documents) after receipt of comments from the EPA and KNREPC and before it becomes a final primary document under Section XX (Review/Comment On Draft/Primary Documents). All Draft-Final Primary Documents will be designated D2. A D2 Primary Document may be subject to the dispute resolution procedures of Section XXV (Resolution of Disputes) of this Agreement.

P. EPA shall mean the United States Environmental Protection Agency and its authorized representatives.

Q. Feasibility Study(s) (FS) shall mean a study to develop and evaluate options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation (RI), using the data gathered during the RI. The RI data are used to define the objectives of the response action, to develop remedial action

alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to the report that describes the results of the study. For purposes of this Agreement, the FS shall be equivalent to the CMS.

R. Hazardous Constituent(s) shall mean those substances listed in Appendix VIII to 40 C.F.R. Part 261 and includes Hazardous Constituents listed in Table 1 of 40 C.F.R. § 261.24.

S. Hazardous Substances shall have the meaning set forth in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

T. Hazardous Waste(s) shall have the meaning set forth by § 1004(5) of RCRA, 42 U.S.C. § 6903(5) and in 40 C.F.R. Parts 260 and 224 KRS 01-010 (31)(b).

U. Interim Measures (IM) shall mean those measures conducted in accordance with Condition II.E. of the EPA HSWA Permit and Condition IV.E of DOE's Kentucky Hazardous Waste Permit to contain, remove, mitigate, or treat contamination resulting from the release of Hazardous Constituents from Solid Waste Management Units and AOCs in order to protect against current or potential threats to human health and the environment. Such measures shall be equivalent to Interim Remedial Actions or Removal Actions under this Agreement.

V. Interim Remedial Action shall mean a temporary or non-final action performed in anticipation of a subsequent final remedy decision. Such actions may be necessary to, among other

things, control or prevent the further spread of contamination while a final comprehensive remedy is being developed. A ROD specifying Interim Remedial Action for an Operable Unit necessitates an incomplete RI/FS for that Operable Unit. Therefore, an RI/FS for an Operable Unit undergoing an Interim Remedial Action, shall be continued or planned in accordance with Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings) of this Agreement.

W. KNREPC shall mean the Commonwealth of Kentucky's Natural Resources and Environmental Protection Cabinet and its authorized representatives.

X. National Contingency Plan (NCP) shall mean the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, and any amendments thereto.

Y. National Priorities List (NPL) Site shall mean the Site as finally promulgated at 40 C.F.R. Part 300.

Z. On-site shall mean the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action, 40 C.F.R. Section 300.400(e). Nothing contained in this paragraph Z shall limit any authority KNREPC has, absent this Agreement, to enforce the requirements of Kentucky law.

AA. Operable Unit (OU) shall mean a discrete action that

comprises an incremental step toward comprehensively addressing Site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of release, or pathway of exposure. The cleanup of the Site can be divided into a number of OUs, depending on the complexity of the problems associated with the Site. OUs may address geographic portions of the Site, specific Site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of the Site. A Comprehensive Site (CS) OU is an OU which integrates the information obtained from Potential OU RI/FS activities regarding environmental media (i.e., surface water OU and ground water OU) which has been contaminated by commingled source Releases. OUs will not impede implementation of subsequent response actions at the Site.

BB. Paducah Gaseous Diffusion Plant (PGDP) shall mean the lands owned by the United States and under the jurisdiction of DOE (approximately 3,423 acres) that are located in Western McCracken County, Kentucky, approximately 10 miles west of Paducah Kentucky. PGDP is described in more detail in Section VIII (Site Description) of this Agreement.

CC. Parties shall mean all parties who are signatories to this Agreement.

DD. Potential Operable Units shall mean those areas listed

in the most recently approved SMP and RCRA Permits which are to be addressed under a single RI/FS Work Plan which may lead to a single Proposed Plan (as such term is hereafter defined) and a corresponding RCRA Permit modification for the Potential OU as a whole, or multiple Interim Remedial Action OU Proposed Plans. Waste Area Groupings identified in the RCRA Permits shall be included in the list of Potential OUs.

EE. Project Manager(s) shall mean the officials designated by EPA, DOE, and KNREPC to coordinate, monitor, or direct remedial response actions at the Site.

FF. Proposed Plan shall be the report which briefly describes the remedial alternatives analyzed, proposes a preferred remedial action alternative, and summarizes the information relied upon to select the preferred alternative. The Proposed Plan shall meet the criteria established in 40 C.F.R. Section 300.430(f)(2). The Proposed Plan shall be considered as equivalent to the Draft Permit Modification.

GG. Quality Assured Data shall mean data that have undergone the quality assurance process as set forth in the approved Quality Assurance Plan.

HH. RCRA shall mean the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901, et seq., as amended. 98-616.

II. RCRA closure and post-closure care shall mean closure and post-closure care of hazardous waste management units under

40 C.F.R. Parts 264 and 265 or the Commonwealth of Kentucky's corresponding regulations.

JJ. RCRA Facility Assessment(s) (RFA(s)) shall mean the assessment(s) performed under RCRA to identify actual and potential releases from regulated units and other Solid Waste Management Units located at PGDP. This includes Solid Waste Management Unit (SWMU) Assessment Reports for newly discovered SWMUs identified since issuance of the RCRA Permits. For the purposes of this Agreement, RFA shall include removal and remedial site evaluations.

KK. RCRA Facility Investigation (RFI) shall mean an investigation performed in accordance with the RCRA Permits to gather data sufficient to adequately characterize the nature, extent and rate of migration of actual and potential hazardous constituent releases identified in the RFA. For purposes of this Agreement, RFI shall be equivalent to the Remedial Investigation.

LL. Record of Decision (ROD) shall mean the document issued which describes a remedial action plan for an Operable Unit pursuant to Section 117(b) of CERCLA, 42 U.S.C. § 9617 and shall be consistent with 40 C.F.R. 300.430(f)(5).

MM. Release shall mean any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other

closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes 1) any Release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such person, 2) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, 3) Release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the AEA, if such Release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under Section 170 of the AEA, or, for the purposes of Section 104 of CERCLA or any other response action, any Release of source, byproduct, or special nuclear material from any processing site designated under Section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978, 4) the normal application of fertilizer, and 5) the Releases of petroleum as excluded under Section 101(14) and (33) of CERCLA, 42 U.S.C. § 9601(14) and (33). However, nothing herein shall affect DOE's obligation to report Releases of petroleum pursuant to KRS 224.01-400 and 224.01-405.

NN. Regulated Unit shall mean a surface impoundment, waste pile, and land treatment unit or landfill that receives hazardous waste after July 26, 1982.

OO. Remedial Action (RA) shall mean the implementation of the RA Work Plan, in accordance with the ROD, the approved Remedial Design (RD), the NCP and Superfund Remedial Design and RA Guidance including on-site construction, treatment processes, and any other necessary tasks and shall be consistent with 42 U.S.C. Section 9601(24). For the purposes of this Agreement, the RA shall be equivalent to the CMI which shall meet the requirements of the RCRA Permits.

PP. Remedial Action Work Plan shall mean the plan describing the implementation of the RA selected for remediation of an OU.

QQ. Remedial Design (RD) Report shall mean the report which specifies the technical analysis and procedures which follow the selection of a remedy and result in a detailed set of plans and specifications for final design of the RA. In accordance with the approved RD Work Plan, Intermediate RD Reports and a Final RD Report shall be submitted for review and comment in accordance with Section XX (Review/Comment on Draft/Final Documents) of this Agreement. The design shall generally be developed in phases (e.g., 30%, 60%, 90%, etc.,) with Intermediate RD Reports for each primary design development/review phase.

RR. Remedial Design (RD) Work Plan shall mean the plan specifying the approach to developing the RD. This plan shall

specify the general content, approach, and schedule for submitting the secondary Intermediate RD Report(s) and the D1 RD Report. Generally, the RD Work Plan shall include the conceptual design.

SS. Remedial Investigation (RI) shall mean an investigation conducted to adequately assess the nature and extent of the Release or threat of Release of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents and to gather necessary data to support the corresponding baseline risk assessment and FS and shall be consistent with 40 C.F.R. 300.5. For purposes of this Agreement, the RI shall be equivalent to the RFI.

TT. Removal Action shall have the same meaning as "remove" or "removal" as defined by Section 101(23) of CERCLA, 42 U.S.C. § 9601(23). For the purposes of this Agreement, Removal Action shall be equivalent to IM under the RCRA Permits.

UU. Respond, Response or Response Action shall have the meaning set forth in Section 101(25) of CERCLA, 42 U.S.C. § 9601(25). For purposes of this Agreement, the terms respond, response and response action shall be equivalent to Corrective Action.

VV. Site (Paducah Site) shall mean "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and includes all areas contaminated by Hazardous Substances, pollutants or

contaminants, or Hazardous Wastes and Hazardous Constituents from Releases at PGDP. This definition is not intended to limit CERCLA, RCRA, or any other federal response authorities or Kentucky authorities.

WW. Site Management Plan (SMP) shall mean the plan, to be updated annually, which establishes the fiscal year, fiscal year +1, fiscal year +2, and any outyear enforceable commitments (i.e., surface and ground water OU completion dates), and long term projections schedule for work planned in accordance with Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings) of this Agreement. The SMP is Appendix G hereto.

XX. Solid Waste shall have the meaning set forth by Section 1004(27) of RCRA, 42 U.S.C. § 6903(27) and in 40 C.F.R. Part 261 and KRS 224.01-010(31).

YY. Solid Waste Management Unit (SWMU) means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or Hazardous Waste. Such units include any area at a facility at which routine and systematic releases of hazardous wastes or hazardous constituents has occurred.

ZZ. Kentucky shall mean the Commonwealth of Kentucky.

AAA. Treatment, Storage, and Disposal (TSD) Units shall include all hazardous waste management units, as the term is

defined by 40 C.F.R. 260.10 and 401 KAR 30:010, authorized to treat, store, and dispose of RCRA hazardous wastes under the RCRA "base program" administered by the Commonwealth of Kentucky.

BBB. Timetables and Deadlines shall mean schedules as well as that work and those actions that are to be completed and performed in conjunction with such schedules, including performance of actions and schedules established pursuant to Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings), Section XIX (Additional Work), Section XX (Review/Comment On Draft/Primary Documents), and Section XXV (Resolution of Disputes) of this Agreement.

CCC. Waste Area Grouping (WAG) shall mean a group of solid waste management units and/or other Areas Of Concern that are geographically contiguous, hydrologic units or SWMUs/AOCs that exhibit other common characteristics (e.g., contaminant type, remedial alternatives, etc.). DOE may consolidate SWMUs, WAGs, and/or other areas into single groupings for purposes of conducting any work under this Agreement and with the concurrence of EPA and KNREPC. Potential OUs include a WAG or a group of WAGs which assemble SWMUs/AOCs under a single RI/FS Work Plan to facilitate effective site characterization.

III. PURPOSES OF AGREEMENT

A. The general purposes of this Agreement are to:

1. Ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and that appropriate response action is taken as necessary to protect the public health and welfare and the environment.

2. Ensure that all Releases of Hazardous Substances, pollutants or contaminants as defined by CERCLA and all Releases of Hazardous Wastes as defined by RCRA and KRS Section 224 or Hazardous Constituents as defined by RCRA are addressed so as to achieve a comprehensive remediation of the Site;

3. Establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at the Site in accordance with CERCLA, the NCP, RCRA Sections 3004(u) and (v), 3008(h), the RCRA Permits the Corrective Action Provisions of KRS 224 Subchapter 46, and appropriate guidance and policy, and in accordance with the law of the Commonwealth of Kentucky;

4. Facilitate cooperation, exchange of information, and participation of the Parties and provide for effective public participation;

5. Minimize the duplication of investigative and analytical work and documentation and ensure the quality of data management;

6. Ensure that response action(s) at the Site will be

in compliance with ARARs (unless a particular ARAR is waived pursuant to 40 CFR §300.430(f)(1)(ii)(C));

7. Expedite response actions with a minimum of delay;

8. Establish a basis for a determination that DOE has completed the RI/FS(s), RD(s), and RA(s) at the Site pursuant to CERCLA, the NCP and the corrective action provisions of KRS 224 Subchapter 46;

9. Coordinate response actions under CERCLA, including actions taken under the ACO, with the Corrective Action activities required by the RCRA Permits and Kentucky hazardous waste laws.

10. Coordinate response actions under CERCLA, RCRA Sections 3004(u) and (v), 3008(h), the Corrective Action Provisions of KRS 224 Subchapter 46, and this Agreement with any investigatory/response actions that may be required pursuant to the KPDES, for those outfall ditches subject to investigation under this Agreement;

11. Coordinate an early review of response actions by the appropriate federal and Kentucky Natural Resources Trustees to minimize or eliminate potential injury to natural resources. Provided, however, that nothing herein shall be deemed to vest in the Natural Resource Trustees any authority they would not otherwise have absent this Agreement.

B. Specifically, the purposes of this Agreement are to:

1. Establish requirements for conducting the removal actions identified or to be identified in Section X (Removal Actions) consistent with the purposes of this Agreement and in a manner consistent with the NCP and the RCRA Permits.

2. Identify Potential OUs, and OUs for Interim RAs, which are necessary or appropriate at the Site in accordance with the program management principles of the NCP. This process is designed to promote cooperation among the Parties in the early identification of Potential OUs and to coordinate the investigatory process with the evaluation of remedial alternatives prior to selection of an Operable Unit(s) via a Proposed Plan.

3. Establish one set of consistent requirements, consistent with the NCP, and the RCRA Permits, for the performance of an RI(s) to adequately determine the nature and extent of the threat to the public health or welfare or the environment caused by the Release or threatened Release of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and hazardous constituents at the Site in accordance with CERCLA, RCRA Sections 3004(u) and (v), 3008(h), the Corrective Action Provisions of KRS 224 Subchapter 46, and in compliance with ARARs identified pursuant to this Agreement. Appendix B lists those SWMUs or AOCs under the RCRA Permits requiring an RI.

4. Establish one set of consistent requirements, consistent with the NCP, and the RCRA Permits for the performance of an FS(s) for the Site to identify, evaluate, and select alternatives for the appropriate RA(s) to prevent, mitigate, or abate the Release or threatened Release of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents at the Site in accordance with CERCLA, RCRA Sections 3004(u) and (v), 3008(h), the Corrective Action Provisions of KRS 224 Subchapter 46, and in compliance with ARARs identified pursuant to this Agreement.

5. Establish requirements for the performance of a periodic review of response actions to determine fully the nature and extent of the threat to the public health or welfare or the environment anticipated to remain at the Site, including risks associated with more than one Operable Unit. The periodic review shall be performed in accordance with Section XXX (Five Year Review) of this Agreement.

6. Identify the nature, objective and schedule of response actions to be taken at the Site. Response actions at the Site shall attain that degree of remediation of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents, as mandated by CERCLA, RCRA Sections 3004(u) and (v), 3008(h), the Corrective Action Provisions of KRS 224 Subchapter 46, and in compliance with ARARs identified

pursuant to this Agreement.

7. Implement the selected removal actions and RAs (including Interim Remedial Actions) in accordance with CERCLA, the NCP, RCRA Sections 3004(u) and (v), 3008(h), the RCRA Permits, the Corrective Action Provisions of KRS 224 Subchapter 46, and in compliance with ARARs identified pursuant to this Agreement.

8. Meet the requirements of Section 120(e)(2) of CERCLA, 42 U.S.C. § 9620(e)(2).

9. Provide for continued operation and maintenance following implementation of the selected RA(s).

10. Assure compliance with Federal and Commonwealth of Kentucky hazardous waste laws and regulations for matters covered by this Agreement.

11. Expedite the remediation process to the extent necessary to protect human health and welfare and the environment.

12. Provide for the continuation of the actions initiated under the ACO and ensure that such actions are in compliance with this Agreement, the NCP and RCRA Sections 3004(u) and (v), 3008(h), and the Corrective Action Provisions of KRS 224 Subchapter 46.

13. Provide for early and meaningful public involvement in the initiation, development, and selection of remedial

action(s) to be undertaken at the Site, including the review of all applicable data as it becomes available and the development of studies, reports, and action plans.

14. Provide a framework for reducing the costs of clean-up activities at the Site through improved project management, greater involvement of EPA and KNREPC in DOE's planning and budgeting processes, improved oversight of clean-up, greater use of consultative approaches, and elimination or streamlining of unnecessary procedures.

C. Under this Agreement, DOE agrees that it shall conduct, at a minimum, the following activities to meet the purposes of this Agreement:

1. Perform site evaluations for those areas with potential or known Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents identified after the effective date of this Agreement, pursuant to Section IX (Site Evaluations) of this Agreement.

2. Identify and prioritize Potential OUs at the Site for the purposes of expediting removal actions/RAs for those OUs which pose the greatest risks of exposure and/or migration. The identification and prioritization of Potential OUs shall meet the requirements of Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings) of this Agreement.

3. Conduct removal actions for the Site in accordance with the timetables set forth in Appendix C of this Agreement. The removal actions shall meet the requirements set forth in Section X of this Agreement.

4. For each final Potential OU (involving final Remedial Action) at the Site, conduct an RI and prepare a Baseline Risk Assessment in accordance with the timetables set forth in Appendix C of this Agreement. The RI and Baseline Risk Assessment shall meet the requirements set forth in Section XI of this Agreement. The scope of the RI and Baseline Risk Assessment shall reflect the scope of the response action for the action under consideration.

5. For each final Potential OU (involving final Remedial Action) at the Site, conduct, develop, and prepare an FS in accordance with the timetables set forth in Appendix C of this Agreement. The FS shall meet the requirements set forth in Section XII of this Agreement. The scope of the FS shall reflect the scope of the action under consideration.

6. Following completion of the RI, Baseline Risk Assessment, and FS for each of the Potential OUs, publish a Proposed Plan for public review and comment in accordance with the timetables set forth in Appendix C of this Agreement. The Proposed Plan shall meet the requirements of Section XIV of this Agreement.

7. For each of the OUs at the Site, issue a ROD in accordance with the timetables set forth in Appendix C of this Agreement. The ROD shall meet the requirements of Section XIV of this Agreement.

8. Develop documentation necessary to support Interim RAs, as required pursuant to Section XIV.B of this Agreement.

9. For the Comprehensive Site Operable Unit(s) (CS OUs) (i.e., surface and ground water integrator units) required in accordance with Section XIII of this Agreement, conduct and report upon a RI/FS (including Baseline Risk Assessment), in accordance with the timetables set forth in Appendix C of this Agreement. The CS OU RI/FS(s) shall be carried out in accordance with Section XIII of this Agreement, and any necessary remedial action shall be selected and implemented in accordance with Sections XIV and XV of this Agreement. In the event EPA and Kentucky determine after review of the Final CS OU, as described in Section XIII of this Agreement, that the selected response actions are not protective of human health and the environment, as required by CERCLA, the NCP, RCRA Sections 3004(u) and (v), 3008(h), the Corrective Action Provisions of KRS 224 Subchapter 46, and appropriate EPA policy and guidance, the three Parties to this Agreement agree to modify the Agreement to take the necessary action to provide adequate protection to human health and the environment.

10. Following finalization of each ROD for each Operable Unit, as set forth in Section XIV of this Agreement, DOE shall develop and submit a RD/RA Work Plan for the design and implementation of the RA(s) selected in each ROD in accordance with Section XV of this Agreement.

11. Following review and approval by EPA and KNREPC of the RD/RA Work Plans for each OU, DOE shall implement the RA(s) in accordance with Section XV of this Agreement.

IV. RCRA/CERCLA AND KPDES COORDINATION

A. The Parties intend to use this agreement to coordinate DOE's CERCLA response obligations with the corrective measures required by its current RCRA Permits and Kentucky's hazardous waste statutes and regulations. The Parties further intend that the response actions under this Agreement together with the corrective measures required by the RCRA Permits, will achieve comprehensive remediation of Releases and threatened Releases of Hazardous Substances, pollutants or contaminants or Hazardous Wastes and Hazardous Constituents from the SWMUs/AOCs in Appendix B, as well as any other Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents from sources identified pursuant to this Agreement. Response actions under this Agreement will address Hazardous Substances, pollutants or contaminants, as defined under CERCLA, in addition to Hazardous Wastes and Hazardous Constituents, as defined under

RCRA. Therefore, the Parties intend that compliance with the terms of this Agreement will be deemed to achieve compliance with CERCLA, 42 U.S.C. §§ 9601, et seq.; the Corrective Action requirements of Sections 3008(h) of RCRA, 42 U.S.C. § 6928(h) for Interim status facilities; the investigation and Corrective Action requirements of § 3004(u) and (v) of RCRA, 42 U.S.C. § 6924(u) and (v); and the Corrective Action requirements of KRS 224 Subchapter 46. The parties also intend that remediation at the Site will meet or exceed all applicable or relevant and appropriate Federal and Kentucky laws and regulations to the extent required by Section 121 of CERCLA, 42 U.S.C. § 9621. The documents common to RCRA and CERCLA, and a flowchart for their submittal is provided in Appendix A to this Agreement. For purposes of coordinating CERCLA, RCRA, and the corrective action requirements of KRS 224 Subchapter 26, the technical documents required pursuant to the CERCLA response action and the federal and Kentucky RCRA corrective action process will be deemed equivalent, provided that the elements of Appendix D are considered and incorporated as appropriate.

B. Further, the Parties intend to coordinate the remedial activities that are regulated under this Agreement with the requirements of the Federal Facility Compliance Act to develop a plan for treatment of those mixed wastes that are: (1) generated by actions under this Agreement, and (2) required to be treated

to meet RCRA Section 3004(m) and KRS 224 Subchapter 46 standards. The Parties agree that all mixed wastes generated by actions under this Agreement will be regulated by the approved Site Treatment Plan and Order enforced by KNREPC in lieu of being regulated under this Agreement.

Finally, the Parties intend to coordinate DOE's RCRA/CERCLA response obligations with the requirements of the KPDES Permit for the Site to evaluate contaminated surface water discharges. This coordination specifically applies to the outfall ditches identified in Appendix B and any other discharge applicable to KPDES permitting, resulting from, at least in part, SWMU or AOC hazardous constituent Releases, or any other hazardous substance Releases identified in Appendix B to this Agreement.

However, the Parties recognize that:

- a. DOE is obligated to comply with the applicable requirements of RCRA, KRS 224 Subchapter 46, CERCLA and Kentucky environmental law for all remedial activities under this Agreement;
- b. the coordination of these statutory requirements under this Agreement in no way diminishes DOE's obligations;
- c. the inclusion of these statutory requirements in a single document serves to facilitate DOE's efficient compliance with these statutory requirements; and
- d. the Agreement is a single document that has a dual purpose

of serving both as a CERCLA § 120 Interagency Agreement and a KRS 224 Subchapter 46 corrective action order; the requirements of both are enforceable by the parties.

C. This Agreement expands the RFAs and Investigations at PGDP, in a manner consistent with Conditions II.C. and II.D.1.b. of the EPA HSWA permit and Conditions IV.C. and IV.D.1.b. of the Kentucky Hazardous Waste Permit, to include requirements to investigate Releases at or from units not identified in the EPA HSWA Permit and the Kentucky Hazardous Waste Permit issued July 16, 1991. The Parties intend to coordinate and combine the assessments, investigations, and other response actions at the Site. Work done and data generated prior to the effective date of this Agreement pursuant to the ACO or the RCRA Permits shall be retained and utilized as appropriate under this Agreement to the maximum extent feasible. A list of the documents submitted to EPA and/or KNREPC pursuant to the ACO and the RCRA Permits is contained in Appendix E. Appendix F identifies the statutory framework governing review of such documents and further identifies whether or not approval of the document was granted. All documents submitted, but not approved, as of the effective date of this Agreement, shall be reviewed and approved in accordance with CERCLA, the NCP, RCRA Sections 3004(u) and (v), 3008(h), the RCRA Permits and the Corrective Action Provisions of KRS 224 Subchapter 46. All documents submitted after the

effective date of this Agreement shall be reviewed and approved in accordance with this Agreement. The Parties intend to combine the administrative records and files developed for activities under the RCRA Permits and any previous response actions with response actions under this Agreement in order to facilitate public participation in the selection of response actions under this Agreement and to ensure comprehensive remediation of the Site. The Parties shall coordinate the procedures for the selection of response action(s) under this Agreement with the administrative procedures for issuance of any future modifications of the RCRA Permits. Subject to Section XL (Reservation of Rights) of this Agreement, EPA and/or KNREPC will modify DOE's RCRA Permits to incorporate the RA(s) selected under this Agreement as corrective measures, when appropriate to satisfy Sections 3004(u) and (v) of RCRA, 42 U.S.C. §§ 6924(u) and (v), and the Corrective Action requirements of Kentucky's Hazardous Waste statutes and regulations. Upon signature of this Agreement by all parties, EPA and KNREPC shall modify DOE's RCRA Permits to amend the compliance schedule for Sections 3004(u) and (v) of RCRA, 42 U.S.C. §§ 6924(u) and (v), and KRS 224 Subchapter 46 to reference the Timetables and Deadlines of this Agreement, as well as other provisions of DOE's RCRA Permits necessary to facilitate coordination with the requirements of this Agreement. If, due to public comment or appeal, any amendment to DOE's RCRA

Permits being made to facilitate such coordination is changed so as to cause inconsistency between the requirements of DOE's RCRA Permits and this Agreement, the Parties agree to modify this Agreement so as to minimize or eliminate the inconsistency to the extent allowable under applicable law.

D. The Parties recognize that the requirement to obtain Permits for response actions undertaken pursuant to this Agreement shall be as provided for in Section XXI of this Agreement.

E. Notwithstanding any provision of this Agreement, any challenges to response actions selected or implemented under Sections 104, 106, or 120 of CERCLA, 42 U.S.C. §§ 9604, 9606, or 9620, may be brought only as provided in Section 113 of CERCLA, 42 U.S.C. § 9613. Judicial review of any conditions of the RCRA Permits which reference this Agreement shall, to the extent authorized by law, be consistent with this Subparagraph E. Nevertheless, KNREPC asserts that nothing in this Agreement shall preclude the KNREPC from taking any action to enforce any requirement of RCRA or KRS Subchapter 46 consistent with Section XL (Reservation of Rights) of this Agreement. DOE reserves the right to appeal any modification to the RCRA Permits which is different from the corresponding response action selected or implemented under this Agreement. The timing of such appeal shall not be limited by this Subparagraph D. DOE also reserves

the right to appeal any modification of the RCRA Permits which is inconsistent with RCRA or KRS 224.

F. KNREPC decisions for TSD Units over which KNREPC has regulatory authority, and for which KNREPC has issued RCRA Hazardous Waste Permits establishing operating, closure, or post-closure standards for treatment, storage and disposal shall not be subject to the terms of this Agreement. Appendix B, which lists such units, will be revised by KNREPC periodically, as appropriate.

G. All materials removed from the Site shall be disposed of or treated at facilities operating in compliance with applicable provisions of RCRA, the Toxic Substances Control Act, 15 U.S.C. §2601 et seq., and other applicable Federal and Kentucky requirements, including U.S. EPA's Off-Site Policy 42 U.S.C. §9657 and 40 CFR §300.440.

V. STIPULATED FACTS

A. For purposes of this Agreement only, the stipulated facts presented herein constitute a summary of facts upon which this Agreement is based. None of the facts related herein shall be considered admissions by any Party. This Section contains findings of fact determined solely by the Parties and shall not be used by any other person related or unrelated to this Agreement for purposes other than determining the basis of this Agreement.

B. PGDP is owned by DOE and is used for the enrichment of uranium for use in fueling power plants. The United States Enrichment Corporation (USEC), a wholly owned federal government corporation, leases and operates portions of PGDP in accordance with the Energy Policy Act of 1992, P.L. 102-486 (signed October 24, 1992), and is subject to the USEC Privatization Act, P.L. 104-134 (signed April 26, 1996) and the lease provisions between DOE and USEC.

C. DOE performed a baseline environmental survey in 1986 which revealed approximately ninety-three (93) areas in which Hazardous Substances may have been Released into the environment within the meaning of Section 101(22) of CERCLA, 42 U.S.C. §9601(22). The survey also identified at least three (3) areas in which the groundwater is contaminated with trichloroethylene (TCE) and radionuclides.

D. PGDP's 1986 Environmental Surveillance Report included data showing that beta emitters were present in samples taken from groundwater well number 66 located in the northwest corner of PGDP. Well number 66 was installed in August 1986. Initial sample data collected from well No. 66 revealed a dissolved beta activity in the sample of 1020 picocuries per liter (pCi/l).

E. On July 25, 1988, personnel from the McCracken County Health Department of the Commonwealth of Kentucky collected groundwater samples from groundwater wells designated 173-R-08

and 173-R-11, near PGDP. The Department for Health Services for the Commonwealth of Kentucky reported analytical results showing that the gross beta, and potentially gross-alpha, activity from these samples were 49.2 pCi/l and 6.8 pCi/l at sampling location 173-R-08 and 188.2 pCi/l and 6.8 pCi/l at sampling location 173-R-11. The analytical results from subsequent samples showed an alpha activity of 7.1 pCi/l and beta activity of 264.0 pCi/l.

F. The analytical data from samples taken in 1988 from on-site groundwater monitoring well number 66 show results for TCE that range from 3800 parts per billion (ppb) to 5900 ppb, and results for technetium (Tc⁹⁹) that range from 2850 pCi/l to 4200 pCi/l.

G. Groundwater well numbers 173-R-08 and 173-R-11 are located approximately 1.5 miles and 0.75 miles, respectively, from the northwest corner of PGDP and are located in line with groundwater well number 66 on PGDP.

H. On August 10, 1988, DOE initiated groundwater sampling of private groundwater wells and analyzed the samples for TCE and Tc⁹⁹.

I. As of November 1988, approximately 135 residential groundwater wells and 23 monitoring wells on the TVA-SHAWNEE reservation were sampled. These wells are located around the perimeter of PGDP. The results of sampling indicated that the contaminants TCE and Tc⁹⁹ are/or may be present in 12 wells

located north of PGDP. In 6 wells, analytical results revealed the presence of TCE in excess of the standard (i.e. 5ug/l) established by EPA for drinking water, promulgated on July 8, 1987.

J. The concentration of TCE detected in the above-mentioned wells ranged from less than 1 ug/l to 960 ug/l. The concentration of technetium in the above-mentioned wells varied from less than 25 to 408 pCi/l. The maximum measured concentration of Tc⁹⁹ in a residential well was 408 pCi/l.

K. On August 12, 1988, PGDP and McCracken County Disaster and Emergency Services personnel contacted ten (10) residents north of the plant and advised them not to drink or bathe in water from their wells. Potable water was supplied to the affected residents.

L. Effective November 23, 1988, DOE and EPA entered into an Administrative Consent Order (ACO) for PGDP. The ACO directed an investigation of PGDP to: (1) determine fully the nature and extent of the threat to human health or welfare and the environment caused by the off-Site contamination of the groundwater from PGDP; (2) ensure that the environmental effects associated with any Releases or threatened Releases are thoroughly investigated and appropriate action taken as necessary to protect the public health, welfare and the environment; (3) establish a work plan and schedule(s) for developing,

implementing and monitoring any necessary response actions at the Site in accordance with CERCLA; and (4) to facilitate the cooperation, exchange of information and participation of the Parties in such action.

M. In accordance with the work plans required pursuant to the ACO, the ACO documents listed in Appendix F have been submitted.

N. In accordance with the Kentucky RCRA Permit and the EPA HSWA Permit, 7 RFI Work Plans, 205 SWMUs identified in various SWMU Assessment Reports, and 4 Interim Corrective Measures Work Plans have been submitted as of June 20, 1996.

O. In accordance with Section 120(d)(2) of the Superfund Amendments and Reauthorization Act of 1986, U.S. EPA prepared a final Hazard Ranking System (HRS) Scoring Package for the Site. The Site was proposed for listing on the National Priorities List in the Federal Register of May 10, 1993. The HRS score was 56.95. The Site was listed on the National Priorities List on May 31, 1994 at 59 Fed. Reg. 27,989.

VI. STIPULATED DETERMINATIONS

For the purposes of this Agreement only, the following constitute the determinations upon which this Agreement is based.

A. PGDP is located in Western McCracken County, Kentucky, approximately 10 miles west of Paducah, Kentucky and constitutes a facility within the meaning of Section 101(9) of CERCLA, 42

U.S.C. § 9601(9). PGDP, for the purposes of this Agreement, is a Federal installation listed on the Federal Agency Hazardous Waste Compliance Docket pursuant to CERCLA Section 120. PGDP is subject to, and shall comply with, CERCLA, RCRA and all applicable Kentucky hazardous waste laws in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity, including liability under Section 107 of CERCLA, 42 U.S.C. § 9607. PGDP is a facility authorized to operate under Section 3005(c) and 3005(e) of RCRA, 42 U.S.C. § 6925(c) and 6925(e), and KRS 224 Subchapter 46.

B. Consistent with RCRA Section 3010, DOE notified EPA and/or Kentucky of hazardous waste activity at the Site in 1980. On June 29, 1984, DOE filed RCRA and KNREPC Part A hazardous waste permit applications. Thereafter, on November 1, 1985, DOE filed RCRA and KNREPC Part B hazardous waste applications for treatment, storage and/or disposal units at the Site.

C. On July 16, 1991, EPA issued a Permit, effective August 19, 1991, under Section 3005(c) of RCRA, 42 U.S.C. § 9625(c), to DOE to require it to determine whether there have been any Releases of Hazardous Waste or Hazardous Constituents from SWMUs or AOCs on PGDP and to take appropriate Corrective Action for any such Releases. This permit, in conjunction with the Hazardous Waste Permit issued by the Commonwealth of Kentucky on July 16, 1991, constitute the RCRA Permits for the PGDP. The PGDP has

treatment, storage or disposal units that have Part B hazardous waste permits.

D. Hazardous Substances, pollutants or contaminants and solid wastes and Hazardous Wastes and/or Hazardous Constituents within the meaning of Sections 101(14), 101(33) and 104(a)(2) of CERCLA, 42 U.S.C. §§ 9601(14), 9601(33), and 9604(a)(2), and Sections 1004(27) and 1004(5) of RCRA, 42 U.S.C. §§ 6903(27) and 6903(5) and 40 C.F.R. Part 261, and KRS 224.01.010 (31)(a) and (b) (42) and 401 KAR 30:010(85) and (87), and 401 KAR 31:010 Section 3 have been Released or disposed of at the Site.

E. There have been Releases and there continue to be Releases and threatened Releases of Hazardous Substances, pollutants or contaminants and solid and Hazardous Wastes (including Hazardous Constituents) from the Site into the environment within the meaning of Sections 101(22), 104, 106, and 107 of CERCLA, 42 U.S.C. §§ 9601(22), 9604, 9606, and 9607, and Sections 1004(27), 1004(5), and 3004(u) of RCRA, 42 U.S.C. §§ 6903(27), 6903(5), and 6924(u), and KRS 224.01-010 (31)0(3)(a) and (b), and (42) and 401 KAR 30:010 (85) and (87)(224)(b) and (82) and 401 KAR 31:010 Section 3. PGDP releases of source, special nuclear, and byproduct materials in compliance with legally enforceable orders issued pursuant to the AEA are "federally permitted releases" as defined in Section 101(10) of CERCLA, 42 U.S.C § 9601(10).

F. With respect to those Releases and threatened Releases, DOE is a person and an owner or operator within the meaning of Sections 101(21), 101(20), and 107 of CERCLA, 42 U.S.C. §§ 9601(21), 9601(20), and 9607, and KRS 224.01-010(17) and Kentucky Administrative Regulations 401 KAR 30:010 (144), (145). PGDP is authorized to operate under Section 3005(e) of RCRA, 42 U.S.C. § 6925(e) and 3005(c) of RCRA, 42 U.S.C. § 6925(c), and Section 3005(c) of RCRA, 42 U.S.C. § 9625(c), and KRS 224 Subchapter 46.

G. The actions to be taken pursuant to this Agreement are reasonable and necessary to protect public health, welfare and the environment.

H. A reasonable time for completing the actions required by this Agreement will be provided.

VII. PARTIES

The Parties to this Agreement are EPA, KNREPC, and DOE. KNREPC is the authorized representative of Kentucky for purposes of this Agreement. The terms of this Agreement shall apply to and be binding upon the EPA, KNREPC, and DOE, their respective agents, employees, and response action contractors for the Paducah Site and upon all subsequent owners, operators, and lessees of DOE for the Site. Nothing in this Section shall be construed as binding the United States Enrichment Corporation (USEC) to the terms of this Agreement. This Agreement shall not

be construed to relieve USEC of its obligations, if any, under the hazardous waste Permit issued for PGDP or of compliance with RCRA or KRS 224 and the regulations promulgated thereunder; nor shall this Agreement be construed as relieving the USEC from any potential CERCLA liability. DOE shall be responsible for coordinating with the USEC to ensure that the on-Site activities of the USEC do not interfere in any way with the implementation of this Agreement. DOE shall notify EPA and KNREPC in its fiscal year quarterly written progress reports (as further discussed in Section XXIII (Reporting) of this Agreement) of the identity and assigned tasks of each of its contractors performing work under this Agreement upon their selection. DOE shall take all necessary measures to assure that its contractors, subcontractors, and consultants performing work under this Agreement act in a manner consistent with the terms of this Agreement. This Section shall not be construed as an agreement by the Parties to indemnify each other or any third party. DOE shall notify its agents, employees, response action contractors for the Site, and all subsequent owners, operators, and lessees of PGDP of the existence of this Agreement.

VIII. SITE DESCRIPTION

PGDP is an active Uranium Enrichment (UE) facility consisting of a diffusion cascade and extensive support facilities. Construction of PGDP began in 1951. The plant began operating in

1952 and was fully operational by 1955, supplying enriched uranium for commercial reactors and military defense reactors.

Extensive facilities are utilized in generating the primary product, enriched uranium. Enriched uranium is uranium in which the concentration of the fissionable U^{235} has been increased. Natural uranium is mostly U^{238} , with about 0.72 weight-percent U^{235} and 0.005 weight-percent U^{234} . Uranium mills process the ores to produce a concentrated uranium oxide, U_3O_8 , that is then commercially converted to uranium hexafluoride (UF_6) for enrichment in the gaseous diffusion plant. The enrichment mechanism is based on the fact that a UF_6 molecule containing U^{235} is slightly lighter than a UF_6 molecule containing U^{238} . As the UF_6 molecules move through several miles of tubing in the diffusion plant's cascade system, slightly more U^{235} than U^{238} escapes through the small holes in the tubing. As the process of cascading is repeated, the U^{235} concentration increases. About two-thirds of the U^{235} in the natural ore is extracted during enrichment, so there are two product streams (1) enriched uranium product, and (2) depleted uranium tails. The majority of the depleted tails are stored, on-site, in 14-ton steel cylinders.

There are facilities to store, process, and manage the two uranium components (enriched and depleted). Also, at present, uranium enriched at PGDP is further enriched at another DOE

gaseous diffusion plant in Portsmouth, Ohio; accordingly, there are packaging and transportation facilities. Most of the uranium from PGDP is ultimately designated for the commercial sector as fuel for nuclear power reactors in the United States and abroad.

There are extensive support facilities to maintain the diffusion process. These include a steam plant, four electrical switchyards, four sets of cooling towers, a chemical cleaning and decontamination facility, water and wastewater treatment plants, a chromium reduction facility, maintenance and laboratory facilities, and two active landfills. Several inactive facilities are also located on the plant site.

On October 24, 1992, the Energy Policy Act of 1992, Pub. L. 102-486, which amended the Atomic Energy Act of 1954, §§ 2011-2296 (1992, as amended), was signed into law. The Energy Policy Act establishes a new government corporation, the United States Enrichment Corporation (USEC), whose charter is to provide uranium enrichment services on a profitable and competitive basis. USEC leased DOE's Gaseous Diffusion Plant at Paducah beginning July 1, 1993. On April 26, 1996, the USEC Privatization Act, Pub. L. 104-134, was enacted.

The Energy Policy Act, the USEC Privatization Act and the lease provisions between DOE and USEC set out certain obligations for environmental conditions at the plant. The Energy Policy Act requires DOE to be responsible for the decontamination and

decommissioning, response actions, and/or Corrective Actions for conditions existing before the transition date. "[A]ll liabilities attributable to operation of the uranium enrichment enterprise before the transition (July 1, 1993) shall remain direct liabilities of the Department of Energy" Pub.L. 102-486 §1406(a). Section 3109(c) of the USEC Privatization Act provides that USEC "shall be liable for any liabilities arising out of its operations after the privatization date."

The area surrounding PGDP is predominantly rural. Immediately adjacent to PGDP is the West Kentucky Wildlife Management Area (WKWMA) comprised of 7000 acres, which is used by a considerable number of hunters and fishermen each year. A portion of PGDP is located on property formerly owned by the Department of Defense that includes the remnants of the Kentucky Ordnance Works (KOW), a World War II-era facility where trinitrotoluene (TNT) and other explosives were manufactured. The remaining area is lightly populated, and includes several farms and residences. The small communities of Grahamville and Heath are located approximately two (2) miles east of the plant. The community of Metropolis, Illinois is across the Ohio River from PGDP. PGDP is ten (10) miles west of Paducah, Kentucky.

PGDP is located within the drainage areas of Big Bayou and Little Bayou creeks, which meet about three miles north of the site and discharge into the Ohio River. Big Bayou Creek, which

flows along the western boundary of the plant, is a perennial stream whose drainage extends from approximately two and one-half miles south of the site to the Ohio River. Little Bayou Creek, which originated in the WKWMA, flows north toward the Ohio River along a course that includes parts of the eastern boundary of the plant. During dry weather much of the flow in both creeks is due to controlled effluent Releases from PGDP. These effluents constitute about 85 percent of the normal flow in Big Bayou Creek and 100 percent in Little Bayou Creek.

The regional geology at PGDP is characterized by Cretaceous, Tertiary, and Quaternary sediments overlying Paleozoic bedrock. The most important formation of these geologic systems includes the Continental Deposits of the Pleistocene/Pliocene series. The sediments of the Continental Deposits predominantly consist of clays, sands, and gravels. The gravel facies, which comprises the lower portion of the formation, is recognized as the most important portion of the formation because of its aquiferous characteristics and continuous nature. Accordingly, the unit has been termed the Regional Gravel Aquifer (RGA). The RGA is the uppermost aquifer at PGDP and serves as a local source of water to residences with private wells surrounding PGDP.

Since establishment of the UE facility in 1951, materials defined as hazardous substances, pollutants and contaminants by

CERCLA and materials defined as hazardous waste and hazardous constituents by RCRA and KRS Chapter 224 and the regulations promulgated thereunder have been produced and disposed or released at various locations at the Site including but not limited to treatment, storage and disposal units. Certain hazardous substances, pollutants, contaminants, hazardous waste and hazardous constituents have been detected and remain in groundwater, surface water, sediments and soils at the Site. Groundwater, surface water, sediments, soils and air pathways provide routes, or potential routes, of migration of hazardous substances, pollutants, contaminants, hazardous waste and hazardous constituents into the environment.

IX. SITE EVALUATION(S)

Upon discovery of an area with potential or known Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents identified after the effective date of this Agreement, DOE agrees to: (a) provide notice to EPA and KNREPC in accordance with Section 300.405 of the NCP, Conditions II.B.1 and II.B.2 of the EPA RCRA Permit and Conditions IV.B.1 and IV.B.2 of the Kentucky Hazardous Waste Permit; and (b) conduct removal site evaluations (SEs) in accordance with Section 300.410 of the NCP, remedial SEs in accordance with Section 300.420 of the NCP, and SWMU assessments in accordance with Condition II.B.3 of the EPA HSWA Permit and

Condition IV.B.3 of the Kentucky Hazardous Waste Permit. The Parties agree that the notifications provided by DOE pursuant to the RCRA Permits shall fulfill the reporting requirements to EPA and KNREPC specified in Section 300.405 of the NCP. DOE shall submit to EPA and KNREPC integrated Removal/Remedial SE and SWMU Assessment Reports (hereafter referred to as SE Reports), in a format consistent with Appendix D to this Agreement, for each newly discovered area with potential or known Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents. If the SE Report indicates that a removal and/or RA under Sections 300.415 or 300.430 of the NCP or the RCRA Permits is necessary, DOE shall conduct such response actions in accordance with Sections X and/or Sections XI through XV (i.e., Removal Actions or RAs) of this Agreement. If, upon review of the SE Report, EPA and KNREPC determine that a remedial investigation is necessary for an area, then DOE agrees, subject to the dispute resolution procedures in Section XXV (Resolution of Disputes), to amend Appendix B to this Agreement to include such areas and to conduct Additional Work at such areas under the terms of this Agreement as needed.

X. REMOVAL ACTIONS

A. Applicability:

DOE shall develop and perform removal actions, pursuant to this Agreement, CERCLA, the NCP, and the IM provisions of the

RCRA Permits to abate, minimize, stabilize, mitigate or eliminate the Release or threat of Release of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents at or from PGDP. DOE shall designate a PGDP On-Scene Coordinator (OSC) as required by Section 300.120 of the NCP. The PGDP OSC shall be the point of contact between DOE, EPA and KNREPC for all removal actions. DOE agrees to submit to EPA and KNREPC an annual Removal Action Report which describes the removal actions performed during the previous fiscal year. As appropriate, this report shall meet the reporting requirements to EPA of §300.165 of the NCP and the IM Reporting provisions of condition II.E.3 of the EPA HSWA Permit and condition IV.E.3 of the Kentucky Hazardous Waste Permit. The report shall be submitted as a section or appendix to the annual SMP.

Nothing in this Section or any other part of this Agreement shall restrict EPA or KNREPC from taking any action authorized under Section 106 of CERCLA necessary to abate Releases or potential Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes or Hazardous Constituents at or from the facility that present an imminent and substantial endangerment to public health or welfare or the environment. Likewise, nothing in this Agreement shall be construed as a waiver of DOE's authority under Executive Order 12580 for implementation of removal actions. Pursuant to Executive Order

12580, DOE has authority to conduct removal actions under Section 104 of CERCLA, 42 U.S.C. § 9604. Except as otherwise provided in this Agreement, in the event of dispute, DOE will exercise its authority to conduct removal actions under Section 104 of CERCLA, 42 U.S.C. Section 9604, pursuant to Executive Order 12580 for Releases or threatened Releases covered by RCRA or KRS 224, Subchapter 46, only after exhausting the dispute resolution provisions of this Agreement. The terms of this Agreement shall not apply to those removal actions addressing Releases which are not covered by RCRA or KRS 224, Subchapter 46. Notwithstanding the foregoing, DOE will notify EPA and KNREPC of any removal actions which are not covered by RCRA or KRS 224 Subchapter 46, and, upon request, will provide copies of the work plans for such removal actions. The Parties understand that DOE is agreeing to notify EPA and KNREPC and provide requested copies of work plans for informational purposes only.

The Parties agree that removal actions shall generally be low-cost response actions, that deal with situations requiring a short-term response. Removal activity is not intended to supplant, compromise or foreclose RAs, including Interim RAs, at the Site. If a long-term remedy is planned, removal actions at the Site may be used to mitigate the threat to human health and the environment until the RA can be implemented. Removal actions shall, to the extent practicable, contribute to the efficient

performance of any anticipated long-term RA with respect to the Release concerned. In selecting an appropriate Removal Action, the parties shall take into consideration the removal actions outlined in section 300.415(d) of the NCP.

B. Removal Action Planning:

Except as otherwise provided by this Section, prior to initiating removal activities, DOE shall submit to EPA and KNREPC for review and approval, a written Removal Notification (the "Removal Notification"). Such submission shall be by return receipt mail or hand delivery.

DOE's Removal Notification shall include the removal site evaluation or summary of the administrative record constituting an equivalent removal site evaluation, a description of the factors considered in determining the appropriateness of the Removal Action (i.e., NCP §300.415(b)(2)), and any information produced through a remedial site evaluation, if any has been done previously, and the current site conditions, to determine if Removal Action is appropriate. The Removal Notification shall contain adequate specificity in defining the nature, extent and duration of the activity to permit meaningful review and comment.

The Removal Notification shall identify whether a planning period of at least six (6) months exists before on-Site activities must be initiated. The planning period shall commence upon submission of the Removal Notification. Removal actions for

which a six month or longer planning period exists shall be defined as Non-Time critical. The Removal Notification for Non-Time Critical Removals shall include a schedule for submission of an EE/CA (as defined below.) All other removal actions shall be defined either as time-critical or emergency actions.

Except as otherwise provided herein, EPA and KNREPC shall review DOE's Removal Notification and shall respond with any comments and/or objections within thirty (30) Days of their receipt. EPA and KNREPC may request additional time, not to exceed twenty (20) Days, in which to respond to the Removal Notification. If EPA or KNREPC disagrees with the classification of an action as removal rather than remedial, or any other aspect of the proposed Removal Action, the disagreement shall be resolved in accordance with Section XXV (Resolution of Disputes) of this Agreement. All removal actions subject to dispute resolution shall be stayed until resolution of the dispute in accordance with Section XXV (Resolution of Disputes) of this Agreement. Unless otherwise provided herein, removal actions under the terms of this Agreement will be taken at the facility if pursuant to this Agreement: 1) DOE determines that a Removal Action is appropriate and such determination is not disputed by EPA or KNREPC, or is resolved in favor of DOE in dispute resolution; or 2) EPA or KNREPC determines that a Removal Action is necessary and DOE agrees to perform such removal or such

determination is resolved in favor of EPA or KNREPC in dispute resolution. EPA or KNREPC may require DOE to submit a Removal Notification. Such submission will be consistent with Condition II.E. of the EPA HSWA Permit or Condition IV.E. of the Kentucky Hazardous Waste Permit. DOE shall submit the Removal Notification within ninety (90) Days of receipt of the EPA or KNREPC request.

C. Emergency Removal Action/Imminent Hazard

An emergency Removal Action taken because of imminent and substantial endangerment to human health or the environment, may be taken by DOE without following the notice, Removal Notification and comment procedures of this Section, including the commitment to exhaust dispute resolution in Subparagraph A and the review and comment procedures of Subparagraph B, only if consultation (i.e., development, review and approval of the Removal Notification) would be impractical, considering the exigencies of the situation. In cases in which a Release at the Site could cause imminent and substantial endangerment to the public health or welfare or the environment, DOE shall proceed as soon possible with the emergency Removal Action and notify EPA and KNREPC in accordance with Section 300.125 of the NCP and Conditions II.I. (Imminent Hazard) and I.D.14. (Twenty-Four Hour Reporting) of the EPA HSWA Permit and Conditions IV. I. and

IV.D.14. of the Kentucky Hazardous Waste Permit. A description of the emergency and the technical specifications for the Removal Action, including any further action needed to complete the Removal Action, must be submitted in writing to EPA and KNREPC within fifteen (15) Days of the Release. The emergency Removal Action must be consistent with the provisions of NCP Section 300.415, and the RCRA Permits.

D. Time-Critical Removal Actions

Upon EPA and KNREPC approval of the Removal Notification for a proposed time critical removal action, DOE shall implement the selected removal action. The Removal Notification submitted for a proposed time critical removal action shall also meet the requirements of the Action Memorandum Primary Document and the IM Work Plan requirements of Section II.E.1.b of the EPA HSWA Permit and condition IV.E.1.b of the Kentucky Hazardous Waste Permit and shall include a proposed response action. DOE shall publish a notice of availability of the administrative record for the selected removal action within sixty (60) Days of the initiation of on-Site removal activity in accordance with §300.415(m) of the NCP and the Administrative Record requirements of §300.820 of the NCP. Within thirty (30) Days after the close of the comment period, DOE shall respond to comments in a Time Critical Removal Action Responsiveness Summary Primary Document for EPA and Kentucky review and approval in

accordance with Section XX of this Agreement. The approved Removal Notification and the Responsiveness Summary shall be included in the Administrative Record.

E. Non-Time-Critical Removal Actions

Upon EPA and KNREPC approval of a Removal Notification for a proposed non-time-critical Removal Action, and in accordance with the schedule in the approved Removal Notification, DOE shall submit to EPA and to the KNREPC for approval, a D1 Engineering Evaluation/Cost Analysis (EE/CA) Primary Document to further evaluate removal alternatives. Upon issuance of the Final EE/CA pursuant to Section XX (Review/Comment on Draft/Primary Documents), DOE shall make the Removal Notification, the EE/CA, and the Administrative Record available for public comment in accordance with NCP § 300.415(m) and shall comply with the Administrative Record requirements of NCP § 300.820. Within thirty (30) Days of the close of the public comment period, DOE shall submit for EPA and Kentucky approval, a D1 Action Memorandum Primary Document which responds to public comments and describes the selected response action. Within thirty (30) Days of EPA and KNREPC approval of the Action Memorandum, DOE shall submit for EPA and KNREPC approval, a D1 Removal Work Plan Primary Document for the work to be performed in completing the selected alternative. The Removal Work Plan shall provide a concise description of the activities to be

undertaken to comply with the requirements of this Agreement and shall meet the IM Work Plan requirements of Section II.E.1.b of the EPA HSWA permit and the requirements of Section IV.E.1.b of the Kentucky Hazardous Waste Permit. The Removal Work Plan shall also contain, but not be limited to, the following: 1) a health and safety plan; 2) a detailed design report (or schedule for submitting a detailed design report); and 3) a schedule for the completion of the work to be performed. Removal Work Plans requiring environmental sampling shall also include a sampling and analysis plan and a quality assurance project plan. Within fifteen (15) Days of EPA's and KNREPC's approval, DOE shall commence implementation of the approved final Removal Work Plan in accordance with the requirements and time schedules set forth in the approved Removal Work Plan.

F. Removal Action Document Review

Unless otherwise provided in this Agreement, any Removal Notification, EE/CA, Action Memorandum, Time-Critical Removal Responsiveness Summary, or Removal Work Plan to be submitted pursuant to this section is a Primary Document subject to review in accordance with Section XX (Review/Comment on Draft/Final Documents) of this Agreement. Any modification of a D1 or D2 Removal Action Primary Document shall be consistent with the purposes of this Agreement, CERCLA, the NCP, the EPA HSWA Permit and the Kentucky Hazardous Waste Permit, and EPA

guidance and policy documents. The approved final EE/CA, Action Memorandum or Removal Work Plans required under this Section shall be incorporated into and be enforceable under this Agreement. Associated timetables and deadlines will be included in Appendix C and the SMP as appropriate.

XI. REMEDIAL INVESTIGATIONS

1. DOE shall develop and perform remedial investigations pursuant to this Agreement, CERCLA, the NCP, RCRA Sections 3004(u) and (v), and 3008(h), the RCRA Permits and the Corrective Action requirements of KRS 224 Subchapter 46. DOE agrees that it shall submit a D1 RI/FS Work Plan and conduct an RI for each Potential OU and CS OU, as defined in the most recently approved SMP. In accordance with this Agreement, an RI Report shall be prepared separately for any final RA. The RI/FS Work Plans and RI Reports shall be developed in a format consistent with Appendix D to this Agreement. The work plan shall be submitted in accordance with the Timetables and Deadlines set forth in Appendix C of this Agreement. The D1 RI/FS Work Plans shall describe the plan for implementing the RI (including a Baseline Risk Assessment) and FS and shall be reviewed in accordance with Section XX (Review/Comments on Draft/Final Documents) of this Agreement. The scope of the RI and Baseline Risk Assessment shall reflect the scope of the response action for the OU under consideration. The RI/FS Work Plan shall describe how Interim

RAs or removal actions, as defined under this Agreement, will be considered throughout the RI/FS to support a bias for action, as described in the NCP Program Management Principles (40 CFR 300.430(a)(1)(ii)).

2. For each of those areas in PGDP SWMU/AOC List of Appendix B to this Agreement, RIs shall be conducted which shall meet the purposes set forth in Section III (Purposes of Agreement) of this Agreement. The SWMUs and AOCs in Appendix B shall be grouped into Potential OUs in the SMP to facilitate effective RI/FS scoping for the Site. For SWMUs and AOCs for which DOE is required to conduct an RFI pursuant to its RCRA Permits, the Parties agree that the RFI and RI shall be combined into a single investigation designed to meet the requirements of both the RCRA Permits and the purposes of this Agreement, as described in Section IV.A. In accordance with the requirements of Section XIV (Proposed Plan(s)/Record(s) of Decision) to this Agreement, DOE will, at a minimum, submit D1 Proposed Plans to EPA and KNREPC for those Potential OUs and CS OUs listed in the most recently approved SMP. If EPA or KNREPC determine that Additional Work is necessary to complete the RI for such a unit, then DOE agrees, subject to the dispute resolution procedures in Section XXV (Resolution of Disputes), to conduct Additional Work at such unit, under the terms of this Agreement.

3. Consistent with Section XX.E (Review/Comment on

Draft/Final Documents; Meetings of Project Managers) of this Agreement, for each RI/FS Work Plan, an RI/FS Scoping meeting will be held in an effort to develop a general consensus on the scope of the RI/FS Work Plan. The purpose of RI/FS scoping is to ensure that KNREPC, EPA and other stakeholders have the opportunity to provide input into designing the work plan so as to minimize comments on the D1 RI/FS Work Plan and thereby accelerate the review, comment and approval process. To facilitate this effort, DOE shall submit a D1 RI/FS scoping document for EPA and Kentucky review at least fifteen (15) Days prior to the RI/FS Scoping meeting. The scoping document may serve as a portion of the RI/FS Work Plan, thereby eliminating duplication of efforts. The RI/FS Scoping Document shall be developed in a manner consistent with Appendix D to this Agreement.

XII. FEASIBILITY STUDIES

As specified herein, DOE agrees it shall conduct an FS for each Potential OU and CS OU, as defined in the most recently approved SMP, and in accordance with this Agreement. An FS shall be separately conducted for any OU carved out from a larger Potential OU or pursuant to Section XIV.B of this Agreement for the purpose of expediting Remedial Action. If an Interim RA is to be performed on an OU carved out in this manner, its separate FS may be limited as appropriate to the scope of that action. An FS

shall be required when the Baseline Risk Assessment, for the Potential OU or a portion thereof, identifies a risk that requires an evaluation of remedial alternatives. At a minimum, an evaluation of alternative remedies (i.e., an FS) to address any Release shall be conducted when the circumstances listed below are present.

- The Baseline Risk Assessment shows that the cumulative carcinogenic risk for an individual exposed to a given Release, based on a reasonable maximum exposure for both current and future land use, is greater than 10^{-6} , or;
- The Baseline Risk Assessment shows that the non-carcinogenic hazard quotient for an individual exposed to a given Release, based on a reasonable maximum exposure for both current and future land use, is greater than 1, or;
- The Release has caused adverse environmental impacts;
- Maximum Contaminant Levels, non-zero Maximum Contaminant Level Goals, or other Chemical-Specific ARARs are exceeded, or;
- Other site-specific or Release-specific circumstances warranting an evaluation of alternatives.

For each FS, a D1 report on the FS shall be submitted in accordance with the Timetables and Deadlines set forth in Appendix C of this Agreement. The D1 FS shall be reviewed in accordance with Section XX (Review/Comments on Draft/Final Documents). The FS shall be based on the RI and shall meet the purposes set forth in Section III (Purposes of Agreement) of this Agreement. For SWMUs for which DOE is required to conduct a CMS pursuant to its RCRA Permits, the Parties agree that the CMS and FS shall be combined into a single study designed to meet the requirements of both the RCRA Permits and the purposes of this Agreement. The FS Report shall be developed in a format consistent with Appendix D to this Agreement.

XIII. OPERABLE UNITS

The Site shall be segregated into Potential OUs and CS OUs for the purpose of scoping and planning RI/FS activities. Potential OUs shall be developed for source areas and CS OUs shall be developed for environmental media contaminated by commingled source releases. OUs for Interim or final RAs may be designated for all or any portion of a Potential OU or CS OU.

A. Potential Operable Units

Pursuant to Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings), DOE agrees that it shall develop a list of Potential OUs, which includes the units in Appendix B to this Agreement, to

effectively manage the implementation of RI/FS activities for the site. Potential OUs shall meet the purposes set forth in Section III (Purposes of Agreement) of this Agreement.

B. Comprehensive Site Operable Units

1. A Comprehensive Site (CS) OU is an OU which integrates the information obtained from Potential OU RI/FS activities regarding environmental media (i.e., surface water OU and ground water OU) which has been contaminated by commingled source Releases. The final RA for any given CS OU shall be evaluated after issuance of all RODs concerning the environmental medium at issue and after completion (excluding long term monitoring and/or Operation and Maintenance) of all final RA(s) for the sources contributing to the commingled contamination. The environmental medium and the sources causing the commingled contamination shall be collectively evaluated under the final CS OU. For each CS OU for which there exists insufficient data to adequately characterize the nature and extent of any contamination, DOE shall develop and submit to EPA a CS OU RI/FS Work Plan (e.g., RI/FS Strategy for the environmental medium) and a RI Report to be finalized in accordance with Section XX (Review/Comment On Draft/Primary Documents) of this Agreement. The schedule for submission of each CS OU RI/FS Work Plan and RI Report shall be included in the appropriate annual Site Management Plan. The CS OU RI Report shall include a baseline

risk assessment for the risk remaining at the Site associated with the CS OU and shall incorporate by reference all data collected pursuant to the RIs for any Interim remedial action OUs or Removal Actions being encompassed in the CS OU. The CS OU RI Report shall summarize all relevant CS OU RI data for the CS OU, including any data collected after the effective date of all RODs for Interim RA OUs and removal actions collectively being evaluated under the CS OU. The CS OU RI shall also gather any additional sampling data if necessary to support the CS OU RI Report (including baseline risk assessment) and FS.

2. A final CS OU shall be designated upon issuance of the last final ROD for the Site. The final CS OU shall evaluate all RODs subject to review under Section XXX (Five Year Review) for a determination of whether any further RA will be necessary due to residual risks which resulted in Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents remaining at the site above levels that allow for unlimited use and unrestricted exposure under the applicable risk/exposure scenario.

C. Operable Units

DOE agrees that a proposed designation of RODs for OUs (OUs), including, as appropriate, OUs carved out from previously-identified Potential OUs, shall be included in its annual Site Management Plan. The Parties shall make selections of the OUs

for the Site, annually, in accordance with Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings) of this Agreement, or as appropriate to support a bias for early response actions, as described in Section XIV.B of this Agreement. OUs may incorporate other OUs for which remedies have already been selected in a ROD, where appropriate (i.e., Comprehensive Site OU, RODs containing final remedy decisions following Interim RAs) to ensure that multiple remedies continue to be protective of human health and the environment. OU(s) and Potential OUs shall meet the purposes set forth in Section III (Purposes of Agreement) of this Agreement.

XIV. PROPOSED PLANS/RECORDS OF DECISION

A. Potential/Comprehensive Site Operable Unit Remedial Actions:

1. In accordance with the schedule in Appendix C and following completion of the review in accordance with Section XX (Review/Comment On Draft/Primary Documents) by EPA and KNREPC of the RI Reports and the corresponding FS Reports for those Potential OUs and CS OUs listed in the most recently approved SMP, DOE shall submit a D1 Proposed Plan(s) for RA(s), including proposed Timetables and Deadlines for the submittal of the RD Work Plan(s) and RA Work Plan(s), to EPA and KNREPC for review in accordance with Section XX (Review/Comment On Draft/Primary

Documents) of this Agreement. Proposed Plans for Potential and CS OU final RAs shall be supported by a complete RI/FS (including a baseline risk assessment) in which the RI/FS data and evaluations to support the final RA are commensurate to the scope of the proposed operable unit. Site-specific data needs, evaluation of alternatives and the appropriate documentation necessary to support a Proposed Plan for a Potential or CS OU for an RA shall reflect the scope and complexity of the site problems being addressed (Section 300.430(a)(1)(ii)(C)).

2. Subject to Section XL (Reservation of Rights) of this Agreement, EPA and/or KNREPC will develop a Statement(s) of Basis and a draft modified RCRA Permit(s) consistent with the approved Proposed Plan, pursuant to Condition II.G. of the EPA HSWA Permit and Condition IV.G. of the Kentucky Hazardous Waste Permit for selection of the WAG/WAG Group final remedy. Where practicable, and subject to Section XL (Reservation of Rights), EPA and KNREPC agree that the Statement of Basis and permit modification for such a final remedy will be contemporaneously developed and processed along with the Proposed Plan and ROD.

B. Expediting Actions under Remedial Authority:

Subject to Section XXV (Resolution of Disputes), any of the Parties may propose expediting Remedial Action for a part of any Potential OU listed in the most recently approved SMP, in accordance with CERCLA, the NCP, Condition II.E of the EPA HSWA

Permit, and Condition IV.E. of the Kentucky Hazardous Waste Permit, so that an RA is performed on that part ahead of the time when the RA is scheduled for the entire OU as listed. By way of example (but not of limitation), expediting Remedial Action might be considered for achieving significant risk reduction quickly and/or efficiently, to expedite the completion of total site cleanup, or to respond to some immediate site threat. RAs expedited in this manner may be either interim or final with respect to the OU being carved out for remediation ahead of the entire OU listed in the SMP. An Interim RA is limited in scope and shall be followed by a final RA that completes protection of human health and the environment through a final remedy decision. Proposed Plans for final RAs shall be supported by a complete RI/FS (including a baseline risk assessment) in which the RI/FS data and evaluations to support the final RA are commensurate to the scope of the proposed OU being remediated on an expedited basis. Site-specific data needs, evaluation of alternatives and the documentation necessary to support a Proposed Plan for a selected remedy for an Interim RA shall reflect the scope and complexity of the site problems being addressed (Section 300.430(a)(1)(ii)(C) of the NCP). Few alternatives (in some cases only one) should be developed for Interim RAs, and completed baseline risk assessments generally are not necessary for Interim RAs when sufficient data is otherwise available to

support interim action decisions.

C. Proposed Plan Review, Approval and Public Notice:

The Proposed Plans shall meet the purposes set forth in Section III (Purposes of Agreement) of this Agreement. Following approval by the EPA and KNREPC pursuant to Section XX (Review/Comment On Draft/Primary Documents) of this Agreement, DOE shall publish the Final Proposed Plan for public review and comment in accordance with Section 117(a) of CERCLA, 42 U.S.C. § 9617(a), the NCP, EPA policy and guidance, and KRS 224 Subchapter 46 and the regulations promulgated pursuant thereto. The Parties agree that public notice of the Proposed Plan may be issued jointly with public notices of any proposed modifications of DOE's RCRA Permits. The period for public review shall be coordinated to meet NCP and the RCRA Permit requirements. Within ten (10) Days of the completion of the public comment period, all Parties shall confer with each other about the need for modification of the Proposed Plan and additional public comment based on the public response.

D. ROD Review, Approval and Final Issuance:

1. For purposes of expediting the ROD development and review, the Parties agree that the Draft Primary Document review process shall not apply. Instead, DOE shall submit, within thirty (30) Days of the close of the public comment period, and any extensions thereof, a Draft-Final ROD, including the

responsiveness summary, to EPA and KNREPC in accordance with the schedule in Appendix C. The Draft-Final ROD shall be developed in accordance with appropriate guidance, shall meet the purposes set forth in Section III (Purposes of Agreement) of this Agreement, and include proposed timetables and deadlines for submittal of the RD Work Plan(s). A review in accordance with Section XX (Review/Comment On Draft/Primary Documents) shall be conducted on the Draft-Final ROD. If the Parties agree on the Draft-Final ROD, the ROD shall be adopted by EPA, KNREPC and DOE, and then DOE shall issue the final ROD pursuant to CERCLA Section 120(e)(4). If, after exhausting the dispute resolution provisions of this Agreement, EPA and DOE are unable to reach agreement on a Draft-Final ROD, the selection of the RA shall be made by the Administrator of EPA, or his or her delegatee, and EPA shall then prepare the final ROD. The selection of the RA by the Administrator of EPA shall be final as to EPA and DOE and shall not be subject to dispute under Section XXV (Resolution of Disputes). If, after the dispute resolution process, KNREPC and EPA are unable to reach an agreement on RA selection, then KNREPC reserves its rights, if any, to impose a permit modification consistent with KNREPC's hazardous waste statutes and regulations and to enforce those requirements in accordance with Section XL (Reservation of Rights) of this Agreement.

2. Notice of the final ROD shall be published by DOE with

EPA and KNREPC's concurrence (provided that KNREPC concurs with the ROD), and shall be made available to the public prior to the commencement of the RA, in accordance with Sections 117(b), (c), and (d) of CERCLA, 42 U.S.C. §§ 9617(b), (c), and (d), RCRA and KRS Chapter 224 and the regulations promulgated thereunder. EPA and/or KNREPC shall propose any modifications necessary to the Corrective Action provisions of DOE's RCRA Permit in conjunction with the notice of the Proposed Plan and final ROD.

XV. REMEDIAL DESIGNS/REMEDIAL ACTIONS

The RD/RAs shall meet the purposes set forth in Section III (Purposes of this Agreement) of this Agreement and the RODs. In accordance with the schedule in Appendix C and following final issuance of each ROD, DOE shall submit a D1 RD Work Plan for the RA selected in the ROD for review in accordance with Section XX (Review/Comment on Draft/Final Documents). The RD Work Plans shall include appropriate Timetables and Deadlines for developing the design and submission of the secondary Intermediate RD Report(s) (e.g., 30 per cent design, 60 per cent design) and the D1 RD Report, and submission of a RA Work Plan. The secondary Intermediate RD Reports and the D1 RD Reports shall be reviewed in accordance with Section XX (Review/Comment on Draft/final Documents). In accordance with the schedule in Appendix C and the schedule in the approved RD Work Plans, DOE shall submit a D1 RA Work Plan with a schedule for implementing the selected RA and

for submitting a Construction Quality Control Plan, a Post Construction Report, an Operation and Maintenance Plan, and a Final Remediation Report (as such terms are more fully defined in Appendix D.) The RA Work Plans, the Construction Quality Control Plans, the Post-Construction Reports, the Operation and Maintenance Plans and the Final Remediation Reports shall be reviewed in accordance with Section XX (Review/Comment on Draft/Final Documents). The parties acknowledge the requirement of CERCLA Section 120 (e)(2), 42 U.S.C. § 9620(e)(2), that substantial continuous physical on-Site RA commence within 15 months of completion of the RI/FS.

XVI. DELIVERABLES

DOE agrees to submit to EPA and KNREPC certain deliverables to fulfill the obligations and meet the purposes of this Agreement. A schedule for submittal of these deliverables shall be specified in Appendix C to this Agreement. Deliverables which include engineering plans for construction, modification or operation of environmental restoration facilities, or which describe RAs, shall be certified by a registered professional in accordance with applicable law. All Primary Document (as such term is hereinafter defined) deliverables shall be signed and certified in accordance with 40 CFR §270.11(d).

XVII. GUIDANCE

EPA agrees to provide DOE with guidance and policy in

response to DOE's written request to assist DOE in the performance of the requirements under this Agreement. EPA shall respond to DOE's request within fifteen (15) Days of receipt of the written request. KNREPC agrees to respond within 15 days to any written request from DOE for information to assist DOE in the performance of the requirements under this Agreement.

XVIII. SITE MANAGEMENT, TIMETABLES AND DEADLINES,
BUDGET PLANNING AND EXECUTION,
COST AND PRODUCTIVITY SAVINGS

A. Site Management Plan

DOE shall submit a D1 annual Site Management Plan (SMP) each year to EPA, KNREPC and other Stakeholders no later than November 15, of each fiscal year (FY) for timetables, deadlines and projected activities pertaining to the next fiscal year (i.e., FY+1) and beyond. The currently effective annual SMP shall remain operative until the next annual SMP is finalized. KNREPC and EPA shall review and comment on the D1 SMP within thirty (30) Days of receipt. DOE shall revise the D1 SMP, if necessary, and submit a D2 SMP within fifteen (15) Days of receipt of EPA and KNREPC comments. The Parties agree to finalize the SMP in accordance with the provisions of Subsection I of Section XX (Review/Comment on Draft/Final Documents) of this Agreement. The purpose of the SMP is to coordinate and document the selected OUs (including Potential OUs and CS OUs), removal actions and proposed removal actions (to the extent possible), work

priorities, projected activities, and Timetables and Deadlines. The D1 SMP shall provide a list of the Potential OUs and CS OUs, as currently defined, based on information available in the current or previous fiscal years. The Potential OU and CS OU lists shall identify the SWMUs/AOCs in Appendix B to this Agreement which are included in each Potential OU and CS OU. A brief justification shall be provided for the inclusion of the SWMUs/AOCs in each Potential OU or CS OU. The SMP shall include a list of OUs, their ROD issuance dates, a brief description of their current RD/RA status and any published Explanation of Significant Difference. The SMP shall include an updated list of Removal Actions and a description of Removal Actions carried out during the previous fiscal year, in accordance with Section X (Removal Actions) of this Agreement. The SMP shall also include a section establishing priorities and Timetables and Deadlines for commitments and long-term projections, in accordance with this Section of the Agreement and based on consideration of other relevant factors, including but not limited to:

1. the logical progression toward cleanup;
2. the reduction of short-term and long-term human health and environmental risk;
3. existing requirements of this Agreement;
4. the life-cycle cost of individual projects;
5. logistic, engineering, technical, and health and safety

concerns related to proposed projects;

6. any impacts on related projects, including the costs and scheduling of such projects;
7. detrimental impacts of significant fluctuations in resource requirements from year to year;
8. DOE's management capabilities;
9. new or emerging technologies;
10. KNREPC's and EPA's oversight capabilities;
11. changing priorities as a result of new information;
12. views expressed by local elected officials;
13. views expressed by the public;
14. any consensus views expressed by the PGDP Citizens Advisory Board;
15. the Congressional budget appropriation, OMB apportionment, and DOE PGDP EM allotment for FY, as well as the PGDP EM allotment in the President's budget for FY+1 and associated outyear funding targets;
16. the completeness and accuracy of the scope, schedule, and costs for the tentative FY tasks;
17. the status of ongoing projects; and
18. costs savings initiatives and productivity improvements.

The parties to this Agreement recognize that the management of the Site remains solely a DOE responsibility; however, the development of the SMP shall include the input and consultation

of EPA and KNREPC.

B. Scoping Work Priorities

DOE agrees to establish a basis for prioritizing response actions with the input and consultation of EPA and KNREPC, and to document the prioritization criteria in the annual SMP. The SMP prioritization criteria shall be used to prioritize the investigatory activities required for the Potential OUs and CS OUs identified in the annual SMP, and for identifying and implementing response actions. The D1 annual SMP shall identify the priorities by ranking the Potential OUs and CS OUs according to the prioritization criteria.

The D1 annual SMP shall include a list of commitments and long-term projections, developed in a manner consistent with the prioritization described herein, which identify the submittal dates for deliverables that correspond to work activities for FY+1 and FY+2, and any enforceable outyear commitments, ROD issuance dates for FY+1 and FY+2, ROD issuance target dates by fiscal year quarters for FY+3 and beyond for all Potential, CS and RA OUs defined pursuant to this Agreement. DOE, KNREPC and EPA agree that the dates for FY+3 RODs and beyond will be nonenforceable and used by all Parties for planning purposes and to develop an understanding of the resource needs that the implementation and oversight of the environmental restoration activities will require. However, the outyear completion dates

for the surface and ground water OUs shall be considered enforceable timetables and deadlines in accordance with the provisions of Subsection C (Timetables and Deadlines) of this Section. Commitments for FY+1 and FY+2 shall become current FY commitments in accordance with the provisions of Subsection C (Timetables and Deadlines) of this Section.

C. Timetables and Deadlines

Enforceable timetables and deadlines for current FY Commitments are contained in Appendix C to this Agreement. Enforceable timetables and deadlines for FY+1 and FY+2 commitments and completion dates for the surface and groundwater OUs are contained in the most recently approved annual SMP. Enforceable timetables and deadlines under this Agreement shall be limited to FY, FY+1, FY+2, and completion dates for the surface water and ground water OUs. The FY+1 timetables and deadlines in the most recently approved SMP shall be incorporated into Appendix C to this Agreement and shall become current FY timetables and deadlines on October 1, FY+1.

D. Budget Planning

1. DOE shall use its best efforts and take all necessary steps to obtain sufficient and timely funding to meet all of its obligations under this Agreement. DOE's compliance with the Budget Planning and Execution provisions of this Agreement shall constitute compliance with the above standard. The Parties

acknowledge Executive Order 12088's requirement that DOE include sufficient funds in its budget request to the President to support the activities and requirements to be conducted under this Agreement.

2. It is DOE's intent to identify, evaluate and implement opportunities to control project costs and increase productivity in meeting its obligations under this Agreement. EPA and KNREPC intend to assist DOE in its commitment to identify, evaluate and implement productivity gains and cost saving measures. The parties agree that budget targets provided by the Office of Management and Budget (OMB) and DOE-HQ shall be considered in establishing the requirements and schedule under this Agreement but further and specifically agree that the targets shall not strictly drive the requirements and schedule of this Agreement. In any action to enforce any provision of this Agreement, DOE may raise as a defense that its failure or delay was caused by the unavailability of appropriated funds. Kentucky disagrees that an Anti-Deficiency Act Defense or any other defense based on the lack of appropriations or funding exists. However, Kentucky and DOE agree and stipulate that it is premature at this time to raise and adjudicate the existence of any such defense. Acceptance of this provision (or any other specific reservation of rights by Kentucky) does not constitute a waiver by DOE of its right to argue that its obligations under this Agreement are

subject to the provisions of the Anti-Deficiency Act, 31 U.S.C. Section 1341.

3. DOE shall consult with EPA and KNREPC in formulating its annual Environmental Management (EM) budget for PGDP, including project work scope and management, priorities, and schedules/compliance dates. DOE shall provide EPA and KNREPC with all necessary information and briefings on the budget formulation, including funding information at the level of the Activity Data Sheet (ADS) (or its Project Baseline Summary (PBS) successor) or the work breakdown structure (WBS) level, if requested. EPA and KNREPC will continue to serve as ex-officio members of the Oak Ridge Reservation Environmental Restoration Prioritization Board which may serve as one of the means by which DOE provides EPA and KNREPC with budget formulation and project management information. In addition, DOE shall provide EPA and KNREPC with budget and project information as follows:

a. Planning for FY and FY + 1

1. Prior to the submission of the annual SMP by DOE, (between July and October of each year), and for the purpose of providing early input into development of the annual SMP, the parties shall evaluate the FY and FY + 1 schedule, current projected cost and funding information, WBS summaries and any cost savings initiatives and productivity improvements. Further, during negotiations of Task Work Agreements (TWAs) and Incentive

Task Orders (ITOs), DOE shall inform EPA and KNREPC of potential changes in project workscope and/or project costs from the workscope and/or project costs contained in previously approved primary documents or ADS (or its Project Baseline Summary (PBS) successor) cost estimates. Upon request, DOE shall provide copies of finally negotiated TWAs and ITOs to EPA and KNREPC.

The parties recognize that the terms of TWAs and ITOs are developed through negotiations between DOE and its contractors and that the final terms of these contracts are not subject to the dispute resolution provisions of this Agreement.

Notwithstanding the foregoing, the parties understand and agree that if project workscope change from previously approved workscope contained in primary documents, DOE shall submit such changes as a modification to the appropriate primary document. The modification request shall be subject to review and approval by EPA and KNREPC and to the dispute resolution provisions of this Agreement.

2. Within thirty (30) days after Congressional appropriation of the FY budget, DOE shall brief EPA and KNREPC on the budget appropriation and proposed Environmental Management (EM) funding allocations for the new FY at the level of the ADS (or its Project Baseline Summary (PBS) successor) or below, if requested. If there is a delay in Congressional appropriations beyond the first of the new federal fiscal year, DOE shall inform

EPA and KNREPC of any continuing resolution action and the impact of the delay on its ability to meet the requirements of this Agreement. EPA and KNREPC will review this information and may recommend reallocation of available funds.

3. Within ten (10) days of the DOE EM allotments to ORR, DOE-ORR shall brief EPA and KNREPC on the DOE-ORR EM allotments at the level of the ADS (or its Project Baseline Summary (PBS) successor) or below, if requested.

4. After receipt of the DOE EM allotments to PGDP, but no later than sixty (60) Days after OMB's apportionment of the DOE's FY EM appropriation, the parties shall evaluate all projects scheduled for FY and FY + 1 in light of the factors in Section XVIII.A. and cost and productivity savings and determine if the PGDP EM allotment exceeds or is less than the projected costs for the proposed work. If the PGDP EM allotment is greater than the projected costs, DOE shall propose additional work or an acceleration of scheduled work at PGDP. DOE may propose using part or all of the excess allotment for activities not covered by this agreement. EPA and KNREPC will review the proposals and may approve changes in the FY and FY + 1 Timetables and Deadlines in Appendix C.

5. If DOE believes that adequate funds or appropriations are not available to comply with the FY obligations of this Agreement, DOE shall nonetheless make a good faith effort to

comply with the enforceable commitments for FY. A good faith effort may, but does not necessarily, include one or more of the following actions: rescoping or rescheduling the work being performed under this agreement consistent with the enforceable commitments, developing and implementing new productivity or cost-saving measures, requesting re-allotments or reprogramming of appropriated funds, and seeking supplemental appropriations.

6. If DOE believes that adequate funds or appropriations are not available to comply with the FY obligations of this Agreement, DOE may submit a request within forty-five (45) business days of PGDP's budget allotment to modify the enforceable Timetables and Deadlines for the current FY commitments contained in Appendix C in accordance with Section XXXIX (Modification of Agreement) and this subsection to the Agreement. The request must include a draft revised Appendix C. KNREPC and EPA shall review and comment on the draft revised Appendix C within fifteen (15) business days of receipt. Within fifteen (15) business days of receipt of KNREPC and EPA comments, DOE will revise, if necessary, the draft revised Appendix C and submit a D2 Appendix C. The parties agree to finalize Appendix C in accordance with the provisions of Subsection I of Section XX (Review/Comment on Draft/Final Documents) of this Agreement and to incorporate necessary revisions to Appendix C approved in accordance with this Subsection into this Agreement, in

accordance with Section XXXIX (Modification of Agreement) of this Agreement. Also, at any other time DOE learns that adequate funds or appropriations are not available, it shall notify EPA and KNREPC within thirty (30) Days of learning such information.

7. KNREPC and EPA will consider the following factors in reviewing a request for a revision of the Timetables and Deadlines in Appendix C: DOE's efforts to comply with the requirements of paragraph D.a.5 of this section; public comments received; consensus views of the PGDP site-specific advisory board; the impact of the proposed revision on human health and the environment; the impact of the revision on project management, life-cycle costs and logistic, technical, and engineering issues related to the project; new or emerging technologies; new technical or characterization information; site priorities identified through consultation among DOE, EPA, KNREPC and the public; the Congressional budget appropriation, OMB apportionment, and DOE-ORR and PGDP EM allotment for FY; DOE's efforts to achieve project cost savings and increases in productivity; and other relevant factors.

b. Planning for FY + 2

1. DOE PGDP shall provide EPA and KNREPC with information on the EM planning budget for fiscal year + two (FY +2), within seven (7) Days of DOE PGDP receiving such information, including any information on OMB and DOE-HQ target funding guidance.

Within twenty-one (21) Days of DOE-PGDP receiving target funding guidance, DOE-PGDP shall provide EPA and KNREPC with a preliminary assessment of its impacts at PGDP. DOE shall also provide a copy of PGDP's initial contractor budget guidance to EPA and KNREPC within two (2) weeks after its issuance.

2. By February 1 of each year, DOE shall prepare a draft Integrated Priority List for PGDP. DOE shall provide EPA and KNREPC with a copy of its draft Integrated Priority List for PGDP and an assessment of the budget targets on site priorities by February 15 of each year. The list shall prioritize all PGDP waste management and environmental restoration activities (including all enforceable commitments of this Agreement) and may include other site activities, as appropriate.

3. Between February 1 and the date that DOE submits its annual budget request and supporting ADS (or its Project Baseline Summary (PBS) successor) for PGDP EM activities to DOE-HQ, DOE, EPA and KNREPC shall meet and discuss project work scope, priorities, and funding levels required to comply with the obligations of this Agreement. DOE may revise its budget request and supporting documentation in response to issues raised by EPA and KNREPC during this timeframe. In the event that issues are not resolved with DOE, DOE shall submit with its budget request to DOE-HQ an outline of any unresolved issues identifying the issues, and DOE's and EPA's and KNREPC's respective positions

with respect to those issues, along with an estimate of the funding necessary to meet the requirements and obligations of this Agreement. In addition, if EPA or KNREPC disagree with DOE's assessment, they may jointly or individually prepare an assessment of the impacts as it relates to PGDP and DOE shall include a copy of the assessment(s) and any comments with its budget request to DOE-HQ. DOE shall provide EPA and KNREPC with a complete copy of the budget request and attached documentation relating to PGDP that is sent to DOE-HQ.

4. After submission of the PGDP EM budget request to DOE-HQ, and prior to submission of the EM budget request to the Secretary of DOE, it is DOE's intent to provide EPA and KNREPC with a copy of any additional written analyses of the proposed PGDP budget and/or potential changes to the proposed PGDP EM budget and any analyses of associated potential impacts on work required under this Agreement sent from PGDP or DOE-ORR to DOE-HQ concerning the PGDP EM budget, subject to a claim of privilege by DOE. In the event of a claim of privilege, DOE shall provide EPA and KNREPC with an explanation setting forth the basis for the claim of privilege. In the event that DOE changes its intent to provide EPA and KNREPC with the documentation required by this paragraph, DOE shall provide EPA and KNREPC with a written explanation as to why such documentation will no longer be provided. DOE's decision is not subject to the dispute

resolution provisions of this Agreement.

5. If the issues raised by EPA and/ or KNREPC are not resolved prior to DOE's submission of its budget request to the Office of Management and Budget (OMB), DOE shall include an outline of any unresolved issues at PGDP identifying the issues and DOE's and EPA's and/or KNREPC's respective positions with respect to those issues, including any comments submitted by EPA and/or KNREPC and an estimate of the funding necessary to meet the requirements of this Agreement with DOE-HQ's budget request submitted to the OMB.

6. Within 10 days of the President's submission of the FY + 1 budget to Congress, DOE shall submit to EPA and KNREPC a summary of the budget request forwarded to DOE-HQ by DOE-ORR and submit to EPA and KNREPC the DOE-PGDP budget request contained in the President's budget.

7. Within thirty (30) days after the President's submission of the FY + 1 budget to the Congress, DOE shall brief EPA and KNREPC on the President's budget request as it relates to the PGDP at the level of detail of the ADS (or its Project Baseline Summary (PBS) successor) or below, if requested. At this briefing, DOE shall provide EPA and KNREPC with a written description of the funding levels included in the President's budget request as it relates to PGDP and identification of any differences between these levels and the levels necessary to

comply with the terms of this Agreement, along with an assessment of the impacts these differences may have on DOE's ability to meet its requirements under this Agreement.

E. Budget Execution for the Current FY

1. During the regularly scheduled project manager meetings, the project managers in their review of the progress of projects scheduled for the year shall discuss potential cost savings initiatives and productivity gains for the projects.

2. DOE shall provide EPA and KNREPC with copies of any PGDP program execution guidance at the same time it is provided to DOE's contractors. DOE shall consult with EPA and KNREPC in reviewing WBS summaries prepared by the contractors.

3. Throughout the FY, DOE shall promptly notify EPA and KNREPC of any proposed site-specific or major programmatic action, if such action is likely to have an impact on DOE's ability to meet the requirements of this Agreement. DOE shall consider any comments made by EPA or KNREPC in implementing the proposed action.

4. Within thirty (30) days of the completion of DOE's annual midyear management review, DOE shall brief EPA and KNREPC on any decisions that affect compliance with the requirements of this Agreement.

5. DOE agrees to notify the EPA and KNREPC when it provides confidential budget information to EPA and KNREPC. EPA and

KNREPC agree not to release confidential budget information to any other entities prior to submission of the President's budget request to Congress, unless authorized by DOE or required to do so by the Kentucky Open Records Act (KRS 61.870 et seq.), by federal statute or regulation, or by court order. DOE may seek to intervene in any proceeding brought to compel or enjoin release of this information. If allowed to intervene, DOE may assert its interest in, and the legal basis for, maintaining the confidentiality of this information.

6. DOE shall provide EPA and KNREPC with a copy of the reports specified in section 3153 of the Defense Authorization Act for fiscal year 1994 within 10 days of their submission to Congress.

7. Neither the process described above, nor EPA and KNREPC's participation in the process, waives their position that the Executive Branch is obligated to seek full funding for all activities required by this Agreement and that DOE's failure to obtain adequate funds or appropriations from Congress does not in any way relieve DOE from its obligation to comply with this Agreement. If adequate funds or appropriations are not available to fulfill DOE's obligations under this Agreement, EPA and KNREPC may pursue any remedy they have under this Agreement or exercise any of their statutory or regulatory authority. In addition, acceptance of the process by DOE-PGDP does not constitute a waiver by DOE of its position that its obligations

under this Agreement are subject to the availability of appropriated funds and the provisions of the Anti-Deficiency Act, 31 U.S.C. Sec. 1341.

8. The participation by EPA and KNREPC in DOE's budget planning and execution process under this Section is limited solely to the process set forth herein and shall in no way be construed as allowing EPA and/or KNREPC to become involved with the internal DOE budget process. Furthermore, nothing herein shall affect DOE's authority over its budgets and funding level submissions.

F. Cost and Productivity Savings

1. The parties agree to consult during the site budget planning and execution processes to identify opportunities and develop and implement approaches for achieving cost and productivity savings in implementing this agreement. The parties agree that the approaches for achieving cost and productivity savings should include, inter alia, review of the standards, requirements, and practices of managing and conducting activities at PGDP to ensure that the objectives of this Agreement are carried out in an efficient and cost-effective manner, as well as efforts to control project scopes, as much as is practicable, to scopes originally agreed upon to provide for the maximum utilization of available allocated funding to implement this Agreement.

Notwithstanding the foregoing, the parties understand that it may be necessary in some circumstances to alter project scopes based

on regulatory or other requirements. Furthermore, while the parties recognize the value of identifying and implementing cost savings measures and productivity improvements, the Parties agree that the identification and implementation of such measures is a goal, and not a requirement, of this Agreement. This Section and Section 4.4 of the SMP set forth the process by which certain percentages of cost and productivity savings will presumptively remain at the PGDP and be applied to activities required under this Agreement.

2. In the event that projects achieve cost and productivity savings that result in excess funds being available after all enforceable commitments under this Agreement have been met within a fiscal year, subject to Paragraph 4 below, a portion of the funding not contractually obligated will stay at the PGDP site and be reallocated to support other work at the site. Cost and productivity savings realized during a given fiscal year may be carried over for performance of other work in subsequent years. DOE will confer with EPA and KNREPC in identifying the other work at PGDP to which any realized cost and productivity savings will be applied. Such other work may include work not required pursuant to this Agreement. If EPA or KNREPC disagrees with DOE's identification of other work to which realized cost and productivity savings will be applied, EPA or KNREPC may invoke the dispute resolution provisions of this Agreement.

3. The Parties understand and agree that mere deferral of work and associated costs shall not constitute "cost and productivity savings" within the meaning of this Agreement.

4. The reallocation process set forth in this Section and Section 4.4 of the SMP shall be utilized to ensure that cost and productivity savings in implementing this Agreement presumptively remain at the PGDP site in accordance with the following schedule:

FY 1997 -- no less than 60% of cost and productivity savings

FY 1998 -- no less than 75% of cost and productivity savings

FY 1999 and beyond -- no less than 90% of cost and productivity savings.

5. To the extent that cost and productivity savings are attributed to any DOE contractor at the Site performing activities required under this Agreement, the percentages cited herein apply to cost and productivity savings remaining after any contractual obligations are paid to any such contractor.

6. The presumption that cost and productivity savings will remain at PGDP may be overcome in cases where DOE determines that imminent danger or significant threat to human health or the environment exist at another site, and the application of PGDP cost and productivity savings is necessary to abate such danger or threat. DOE will consult with KNREPC and EPA prior to making a determination to apply any portion of cost and productivity

savings to another site. Determinations with respect to overcoming the presumption that cost and productivity savings will stay at PGDP lie within DOE's sole discretion and shall not be subject to the Dispute Resolution provisions of this Agreement.

XIX. ADDITIONAL WORK

A. In addition to the provisions of Section XX (Review/Comment On Draft/Primary Documents) of this Agreement, either EPA or KNREPC may at any time request Additional Work, including field modifications, remedial investigatory work, or engineering evaluations, which they determine necessary to accomplish the purposes of this Agreement, when the basis for modifying a primary document, as specified under Section XX.J of this Agreement, cannot be demonstrated. Such requests shall be in writing to DOE, with copies to the other Parties. DOE agrees to give full consideration to all such requests. DOE may either accept or reject any such requests and shall do so in writing, together with a statement of reasons, within forty-five (45) Days of receipt of any such request. If there is no agreement concerning whether or not the requested Additional Work or modification to work should be conducted, then dispute resolution may be invoked by DOE within thirty (30) Days after DOE's submission of its written rejection of the request for such Additional Work or modification of work.

B. Should Additional Work be required pursuant to this Section, the appropriate work plan shall be amended and proposed by DOE for review and approval by EPA and KNREPC. Appendix C to this Agreement shall be modified if necessary in accordance with Section XXXIX (Modification of Agreement) of this Agreement.

C. The discovery of previously unknown sites, Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents or other significant new Site conditions, including newly acquired information concerning residual risk, may be addressed as Additional Work under this Section.

D. Any Additional Work or modifications to work proposed by DOE shall be proposed in writing to the other Parties and shall be subject to review in a Primary Document (or modification to an existing Primary Document) in accordance with Section XX (Review/Comment on Draft/Final Documents) of this Agreement. DOE shall not initiate such work prior to review and approval by EPA and KNREPC, except for emergency Removal Actions taken under Subsection X.B (Removal Actions).

E. Any Additional Work or modification to work agreed to or required under this Section, shall be completed in accordance with the standards, specifications, and schedules determined or approved by EPA and KNREPC and shall be governed by the provisions of this Agreement.

XX. REVIEW/COMMENT ON DRAFT/FINAL DOCUMENTS

A. Applicability

The provisions of this Section establish the procedures that shall be used by DOE, EPA and KNREPC to provide the Parties with appropriate notice, review, comment, and response to comments regarding documents specified herein as either primary or secondary documents. In accordance with Section 120 of CERCLA, 42 U.S.C. § 9620, and the RCRA permits, DOE shall be responsible for issuing primary and secondary documents to EPA and KNREPC. As of the effective date of this Agreement, all D1 and D2 documents and reports that are required to be submitted to EPA and KNREPC under this Agreement, as identified herein, shall be prepared and distributed in accordance with Subsections B through J, below. All documents shall be clearly labeled as primary or secondary, and as D1, D2 or Final. All primary and secondary documents shall meet the requirements of CERCLA, the NCP, KRS 224 Subchapter 46, the RCRA Permits, and be consistent with relevant guidance issued by EPA.

The designation of a document as D1 or D2 is solely for purposes of consultation with EPA, KNREPC and other Stakeholder in accordance with this Section.

B. General Process for Document Review

1. Primary Documents are those documents identified in Subsection C.1 herein, for all response actions at the Site.

Primary Documents are initially issued by DOE in draft subject to review and comment by EPA and KNREPC. Following receipt of comments on a particular D1 Primary Document, DOE will respond to comments received and issue a D2 Primary Document subject to EPA and KNREPC approval.

2. Secondary Documents typically include those documents that are discrete portions of the Primary Documents and are typically feeder documents. Secondary Documents are issued by DOE in draft subject to review and comment by EPA and KNREPC. Although DOE must respond to comments received, the D1 Secondary Documents may be finalized in the context of the corresponding Primary Documents. A Secondary Document may only be disputed at the time the corresponding D2 Primary Document is submitted.

3. The Parties agree that plans and reports prepared by DOE for SWMUs/AOCs subject to the Corrective Action requirements of its RCRA Permits, as well as the review of such plans and reports by EPA and KNREPC, shall be combined into a single document with its corresponding CERCLA counterpart designed to meet the requirements of both the RCRA Permits and this Agreement.

C. Primary Documents

1. DOE shall complete and transmit the following D1 Primary Documents to EPA and KNREPC for review and comment in accordance with the provisions of this Section:

- a. Community Relations Plan;
- b. RI/FS Work Plans;
- c. RI Reports;
- d. Baseline Risk Assessment Reports;
- e. FS Reports;
- f. Proposed Plans;
- g. Records of Decision;
- h. Remedial Design Work Plans;
- i. Final Remedial Design Reports;
- j. Remedial Action Work Plans;
- k. Final Remediation Reports
- l. Site Management Plans;
- m. Removal Work Plans;
- n. Engineering Evaluation/Cost Analyses (EE/CA);
- o. Action Memoranda;
- p. Data Management Plan;
- q. Site Evaluation Reports;
- r. Time-Critical Responsiveness Summaries; and
- s. Removal Notification.

2. The RD Reports may be submitted in phased packages when necessary to expedite construction work under this Agreement. In such cases, the RD Work Plan shall describe the phased submittals and identify the RD submittals which shall be considered Primary Documents for purposes of Section XLIII (Stipulated Penalties) under this Agreement.

3. Only the D2 Documents for the Primary Documents identified above shall be subject to dispute resolution. DOE shall complete and transmit D1 Primary Documents in accordance with Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings) of this Agreement.

4. A D1 Primary Document may not be required for an OU if: (a) the same Primary Document completed or to be completed

with respect to another OU addresses all required elements of the subject OU, and, (b) the Parties agree in writing that such a Primary Document for the subject OU is adequately addressed in another Primary Document. The Parties agree to merge or combine multiple documents (including secondary documents), whenever appropriate, in an effort to accelerate the documentation process.

D. Secondary Documents

1. DOE shall complete and transmit drafts of secondary documents to EPA and KNREPC for review and comment in accordance with the provisions of this Section. The following list contains examples of secondary documents:

- a. Sampling and Analysis Plans;
- b. Preliminary Risk Assessment Reports;
- c. Preliminary Characterization Summary; Reports;
- d. Screening/Analysis of Alternatives;
- f. Treatability Study Reports;
- g. Fiscal Year Quarterly Progress Reports;
- h. RI/FS Scoping Document;
- i. Field Sampling Plans;
- j. Quality Assurance Project Plans;
- k. Health and Safety Plans;
- l. Sampling and Analysis Results;
- m. Chain of Custody Forms;
- n. Request for Analysis Forms;
- o. Computer Models and Technical Databases;
- p. Minutes of Public Meetings;
- q. Public Meeting Transcripts;
- r. Administrative Record Index;
- s. Results of Community Interviews;
- t. Responsiveness Summaries;
- u. Intermediate Remedial Design Reports (eg., 30%, 60%, etc.);
- v. Removal Site Evaluations;

- w. Construction Quality Control Plans;
- x. Post-Construction Reports; and,
- y. Operation and Maintenance Plans.

2. Although EPA and KNREPC may comment on the D1 secondary documents, such documents shall not be subject to dispute resolution except as provided by Subsection B hereof. In lieu of providing comprehensive comments on a D1 Secondary document, EPA and KNREPC may comment or provide comments identifying major issues. At a minimum, it is EPA's and KNREPC's intent to provide comments on secondary documents to ensure that major issues are identified which may negatively impact review and approval of a subsequent primary document and/or to ensure that site activities are progressing consistent with the requirements of this Agreement and the RCRA Permits. Failure of EPA and/or KNREPC to comment on a secondary document does not constitute EPA and/or KNREPC approval of the secondary document. Secondary documents shall be identified and target dates shall be established for the completion and transmission of D1 secondary documents within Primary Documents (e.g., work plan primary documents) pursuant to Section XVIII (Site Management, Timetables and Deadlines) of this Agreement. When secondary documents are developed and submitted independent of primary documents, then DOE shall identify target dates for such secondary documents.

E. Meetings of Project Managers

The Project Managers shall meet approximately every forty-five (45) Days, except as otherwise agreed by the Parties, to review and discuss the progress of work being performed at the Site and to discuss the progress of work being performed on Primary and Secondary Documents. The Parties shall hold RI/FS scoping meetings pursuant to Section XI (Remedial Investigations) as early as possible and in accordance with the SMP to effect a meaningful exchange of information/expectations prior to the date D1 RI/FS Work Plans are due. Prior to preparing any D1 document specified in Subsections C and D above, the Parties may confer as necessary to discuss the documents in an effort to reach a common understanding.

F. Identification and Determination of Potential ARARs

1. For those Primary Documents or secondary documents that consist of or include ARAR determinations, prior to DOE's issuance of such a D1 document, the Parties shall confer to identify and propose, to the best of their ability, all potential ARARs pertinent to the document being addressed including any permitting requirements which may be a source of ARARs. DOE shall initiate ARARs identification during the initial stages of development of such primary or secondary documents by performing a comprehensive evaluation of possible ARARs. DOE shall notify EPA and KNREPC, as early as possible, of the status of the ARAR evaluation in order to permit a meaningful review of the

potential ARARs by EPA and KNREPC. EPA and KNREPC may request additions or deletions to the ARARs list prior to DOE's formal submission of the document. Kentucky will identify potential state ARARs as required by CERCLA Section 121(d)(2)(A)(ii), 42 U.S.C. § 9621(d)(2)(A)(ii). Draft ARARs determinations shall be prepared by DOE in accordance with Section 121(d)(2) of CERCLA, 42 U.S.C. § 9621(d)(2), the NCP, and pertinent guidance issued by EPA.

2. In identifying potential ARARs, the Parties recognize that actual ARARs can be identified only on an Operable Unit-specific basis and that ARARs depend upon the specific Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents at a site, the particular actions proposed as a remedy and the characteristics of an Operable Unit. The Parties recognize that ARARs identification is necessarily an iterative process and that potential ARARs must be re-examined throughout the RI/FS processes until the ROD is issued.

3. Nothing in this Agreement or this Section of the Agreement shall be construed to affect KNREPC's Reservation of Rights.

G. Review and Comment on Documents

1. DOE shall complete and transmit each D1 Primary Document to EPA and KNREPC on or before the corresponding

deadline established for the submittal of the document established pursuant to Section XVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings) of this Agreement. DOE shall complete and transmit the D1 Secondary Document in accordance with the target dates established for the issuance of such documents according to the approved schedules within the appropriate Work Plans.

2. Unless the Parties mutually agree to another time period, or unless otherwise specified in this Agreement, all D1 Primary Documents shall be subject to the review/comment period specified in Appendix F for the given document under review. All D2 Primary Documents shall be subject to a thirty (30) Day period of review. All D1 Secondary Documents shall be subject to a ninety (90) Day period of review unless the Parties mutually agree to another time period, or if the ninety (90) Day review period would conflict with the review of the corresponding primary document, in which case an alternative period of review for the secondary document shall be specified in the annual SMP, the associated primary document, or other written Agreement. Review of any document by the EPA and KNREPC may concern all aspects of the document (including its completeness) and should include, but is not limited to, technical evaluation of any aspect of the document and consistency with CERCLA, the NCP, the RCRA Permits and any pertinent guidance or policy promulgated by

EPA. Comments by EPA and KNREPC shall provide adequate specificity so that DOE may respond to the comments and, if appropriate, make changes to the D1 document. Comments shall refer to any pertinent sources of authority or references upon which the comments are based, and, upon request of DOE, EPA and KNREPC shall provide a copy of the cited authority or reference. In cases involving complex or unusually lengthy reports, EPA and KNREPC may extend the review period for D1 and D2 Primary Documents an additional thirty (30) Days by written notice to DOE prior to the end of the review period. In extenuating circumstances, this period may be further extended in accordance with Section XXIX (Extensions) of this Agreement. On or before the close of the review/comment period, EPA and KNREPC shall transmit their written comments to DOE.

3. Representatives of DOE shall make themselves readily available to EPA and KNREPC during the review/comment period for purposes of informally responding to questions and comments on D1 documents. Oral comments made during such discussions need not be the subject of a written response by DOE at the close of the review/comment period.

4. In commenting upon a D1 document which contains a proposed ARAR determination, EPA or KNREPC shall include a reasoned statement of whether it objects to any portion of the proposed ARAR determination. To the extent that EPA and/or

KNREPC objects, it shall explain the bases for its objection in detail and shall identify any ARARs which it believes were not properly addressed in the proposed ARAR determination.

5. Following the close of the review/comment period for a D1 document, DOE shall fully address all EPA and KNREPC written comments on the D1 document submitted during the review/comment period by revising the document or providing an adequate response as to why the document does not require revision in response to the comment. Within forty-five (45) Days of the receipt of comments on a D1 Secondary Document, DOE shall transmit to EPA and KNREPC its written response to comments received within the review/comment period. The D1 Secondary Document may be revised and submitted with the appropriate D1 or D2 Primary Document. Within the time period specified in Appendix G for DOE response to comments on a D1 Primary Document, DOE shall transmit to EPA and KNREPC the D2 Primary Document, which shall include DOE's response to all EPA and KNREPC written comments received within the review/comment period.

6. DOE may extend the period specified in Appendix G for responding to comments on a D1 document and issuing the D2 Primary Document for an additional thirty (30) Days by providing written notice to EPA and KNREPC. In extenuating circumstances, this time period may be further extended in accordance with Section XXIX (Extensions) of this Agreement.

H. Availability of Dispute Resolution for D2 Primary Documents

1. Dispute resolution shall be available to the Parties for D2 Primary Documents as set forth in Section XXV (Resolution of Disputes).

2. When dispute resolution is invoked on a D2 Primary Document, work may be stopped in accordance with the procedures set forth in Section XXV (Resolution of Disputes).

I. Finalization of Documents

Within the time period for review of a D2 Primary Document, including any extensions thereof, both EPA and KNREPC shall either issue a letter of concurrence, a letter of conditional concurrence, or a letter of non-concurrence. The letter of conditional concurrence shall specify the conditions which must be satisfied in the subject Primary Document and shall either: 1) specify a due-date for resubmission of the revised D2 Primary Document and specify the revisions which must be made to the document (generally for reports); or, 2) specify the document's effective date and list the conditions which must be met (generally for work plans). The letter of non-concurrence shall describe the basis for non-concurrence and serve to invoke informal dispute in accordance with Section XXV.B (Resolution of Disputes) of this Agreement.

The period for review of the D2 Primary Document terminates upon EPA and KNREPC issuance of a letter of concurrence,

conditional concurrence, or non-concurrence. In accordance with Section XXV (Resolution of Disputes) of this Agreement, DOE may invoke dispute resolution regarding a conditional concurrence or nonconcurrence. If KNREPC and EPA fail to issue a letter of concurrence, non-concurrence, or conditional concurrence within the time period for review, including all extensions thereof, then DOE will be presumed to have good cause for a request for an extension pursuant to Section XXIX (Extensions) hereof.

The D2 Primary Document shall become the Final Primary Document upon DOE receipt of EPA and KNREPC written concurrence or, upon receipt of EPA and KNREPC letters of conditional concurrence which specify the required changes to the Primary Document, provided that the changes are made, or if dispute resolution is invoked, at completion of the dispute resolution process should DOE's position be sustained. If DOE's determination is not sustained in the dispute resolution process, DOE shall prepare, within not more than sixty (60) Days, a revision of the D2 Primary Document which conforms to the results of dispute resolution. In appropriate circumstances, the time period for this revision period may be extended in accordance with Section XXIX (Extensions) of this Agreement.

J. Subsequent Modifications of Final Documents

Following finalization of any Primary Document pursuant to Subsection I, above, EPA, KNREPC, or DOE may seek to modify

the document, including seeking additional field work, pilot studies, computer modeling or other supporting technical work, only as provided in Subsections J.1 and 2, below.

1. EPA, KNREPC, or DOE may seek to modify a document after finalization if it determines, based on new information (e.g., information that became available, or conditions that became known, after the document was finalized) that the requested modification is necessary. Any party seeking modification may seek such a modification by submitting a concise written request to persons designated to receive notice pursuant to Section XXIV of this Agreement. The request shall specify the nature of the requested modification and how the request is based on new information.

2. In the event that a consensus is not reached by the Parties on the need for a modification, any of the Parties may invoke dispute resolution to determine if such modification shall be made. Modification of a document shall be required only upon a showing that: (1) the requested modification is based on new information; and (2) the requested modification could be of significant assistance in evaluating impacts on the public health or the environment, in evaluating the selection of remedial alternatives, or in protecting human health and the environment.

3. Nothing in this Subsection shall alter either EPA's or KNREPC's ability to request the performance of Additional Work

pursuant to Section XIX (Additional Work) of this Agreement which does not constitute modification of a final document.

K. EPA/KNREPC Review and Comment Coordination

To the extent practicable, EPA and KNREPC intend to coordinate their review of documents and consult on major issues raised during such reviews prior to submission of their individual comments to DOE. However, this provision shall in no way preclude EPA and KNREPC from submitting comments to DOE which may conflict. If such conflicts cannot be resolved during preparation of the D2 document or the D2 review period, and any extensions thereof, the dispute may be resolved in accordance with Section XXV of this Agreement (Resolution of Disputes).

XXI. PERMITS

A. The Parties recognize that under Section 121 (e) (1) of CERCLA, 42 U.S. C. § 9621(e) (1), portions of the response actions required by this Agreement and conducted entirely on the Site are exempted from the procedural requirement to obtain federal, state, or local permits, when such response action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S. C. § 9621. It is the understanding of the parties that the statutory language is intended to avoid delays of on-Site response actions, due to procedural requirements of the permit process. The parties agree that: (a) any activity required under a ROD or hazardous waste permit modification in which KNREPC

concurrent; (b) decommissioning activities; (c) removal actions for hazardous substances that are also hazardous wastes or hazardous constituents performed in accordance with Section X (Removal Actions); and (d) remedial or removal actions for hazardous substances that are not also hazardous wastes or hazardous constituents (e.g., radionuclides that are not mixed wastes or PCBs) are being approved, at least in part, pursuant to CERCLA authorities. Therefore, no permits are required for these activities. DOE agrees to seek and implement any federal, state, or local permit, including RCRA or KNREPC hazardous waste permit, for operations or processes required to implement activities regulated under this Agreement, other than those listed in (a) - (d) above. However, this Agreement does not supersede, modify, or otherwise change the requirements of DOE's existing RCRA permits or DOE's requirement to modify its existing RCRA permits consistent with the terms of this Agreement. Further, when DOE proposes a response action to be conducted entirely on-site which in the absence of CERCLA Section 121(e)(1) and the NCP would require a federal or state permit, DOE shall include in the submittal:

1. Identification of each permit which would otherwise be required.
2. Identification of the standards, requirements, criteria, or limitations which would have had to have

been met to obtain such permit.

3. An explanation of how the response action proposed will meet the standards, requirements, criteria, or limitations identified.

Notwithstanding the foregoing, KNREPC asserts that the application of CERCLA Section 121(e)(1), 42 U.S.C. § 9621(e)(1), does not constitute a waiver of any Kentucky statutory or regulatory requirement or a waiver of KNREPC's rights to require DOE to obtain a permit if EPA and KNREPC do not issue concurrence hazardous waste permit modifications/RODs. Furthermore, nothing in this Agreement shall be construed as an admission by any Party as to whether any permits would be required if EPA and KNREPC do not issue concurrence hazardous waste permit modifications/RODs.

B. If a permit which is necessary for implementation of this Agreement is not issued, or is issued or renewed in a manner which is materially inconsistent with the requirements of this Agreement or, by no fault of DOE, is not issued in time for DOE to comply with the terms of this Agreement, DOE agrees it shall notify the Secretary of the KNREPC and the Regional Administrator of EPA of its intention to propose modifications to this Agreement (or modifications to primary or secondary documents required by this Agreement) to obtain conformance with the permit (or lack thereof). Notifications by DOE of its intention to propose modifications shall be submitted within seven (7)

business Days of receipt by DOE of notification that: (1) a permit will not be issued; (2) a permit has been issued or reissued; or (3) if the permit is appealed, a final determination with respect to any such appeal has been entered. If DOE does not receive advance notification that a permit will not be issued, then DOE may notify EPA and KNREPC of its intent to propose modifications within seven (7) Days after the date that the permit is needed by DOE in order to comply with the terms of this Agreement. Within thirty (30) Days from the date it submits its notice of intention to propose modifications, DOE shall submit to the Secretary of the KNREPC and the Regional Administrator of EPA its proposed modifications to this Agreement with an explanation of its reasons in support thereof.

C. During any appeal of any permit required to implement this Agreement or during review of any of DOE's proposed modifications as provided in Subsection B of this Section, DOE shall continue to implement those portions of this Agreement which can be implemented pending final resolution of the permit issue(s).

XXII. CREATION OF DANGER

A. In the event that the Secretary of KNREPC or the Regional Administrator of EPA determines that activities conducted pursuant to this Agreement may present an imminent and substantial endangerment to the health or welfare of the people

on the Site or in the surrounding areas or to the environment, the Secretary of KNREPC or the Regional Administrator of EPA may order DOE to stop any work being implemented under this Agreement for such period of time as needed to abate the danger or may require DOE to take necessary action to abate the danger or both. In the event that DOE determines that any on-site activities or work being implemented under this Agreement may create an immediate threat to human health or the environment from the Release or threat of Release of a hazardous substance, pollutant or contaminant, it may stop any work or on-site activities for such period of time as needed to respond to or abate the danger. In the event DOE makes a determination to stop work under this Section, it shall immediately notify EPA and KNREPC. DOE shall submit a written summary of events to EPA and KNREPC within five (5) Days of making a determination under this Section.

B. The EPA and KNREPC agree to comply with DOE's Site Health and Safety Plan, or its equivalent, for EPA and KNREPC activities on PGDP.

XXIII. REPORTING

DOE agrees that it shall submit to KNREPC and EPA, fiscal year quarterly written progress reports (FY Quarterly Reports) which describe the actions which DOE has taken during the previous quarter to implement the requirements of this Agreement. FY Quarterly Reports shall also describe the schedules of

activities to be taken during the upcoming quarter. FY Quarterly Reports shall also provide the identity and assigned tasks of each of DOE's contractors pursuant to Section VII (Parties) hereof. Progress reports shall be submitted on or before the thirtieth Day following the end of each fiscal year quarter (i.e., January 30, April 30, July 30 and October 30). DOE's first fiscal year quarterly progress report shall be due thirty (30) Days after the end of the first quarter following the effective date of this Agreement. The progress reports shall include a detailed statement of the manner and extent to which the requirements and time schedules set out in the Appendices to this Agreement are being met. The Progress Report shall also include a Primary/Secondary Document Tracking System. The tracking system should identify all documents under review and/or preparation for the given quarter and the due dates for completion of review/modification tasks. In addition, the progress reports shall identify any anticipated delays in meeting time schedules, the reason(s) for the delay and actions taken to prevent or mitigate the delay.

XXIV. NOTIFICATION

A. Unless otherwise specified, any report or submittal provided pursuant to a schedule or deadline identified in or developed under this Agreement shall be sent by certified mail, return receipt requested, or similar method (including electronic

transmission) which provides a written record of the sending and receiving dates and addressed or hand delivered to the following persons:

U. S. Environmental Protection Agency, Region IV
Remedial Project Manager
Paducah Gaseous Diffusion Plant
Federal Facilities Branch
100 Alabama Street, S. W.
Atlanta, Georgia 30303

Kentucky Department for Environmental Protection
Director, Division of Waste Management
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

U. S. Department of Energy
Site Manager
Paducah Site Office
P.O. Box 1410
Paducah, Kentucky 42001-1410

Copies of all correspondence shall be provided by the originator to all Parties. Unless otherwise specified or requested, all routine correspondence, other than a document or submittal as described above, may be sent via regular mail or electronically transmitted to the above persons.

XXV. RESOLUTION OF DISPUTES

Except as specifically set forth elsewhere in this Agreement, if a dispute arises under this Agreement, the procedures of this Section shall apply. All Parties to this Agreement shall make reasonable efforts to informally resolve disputes at the Project Manager or immediate supervisor level. If resolution cannot be achieved informally, then the procedures

of this Section shall be implemented to resolve a dispute.

Nothing herein shall be construed as a limitation upon KNREPC's reservation of rights pursuant to Section XL (Covenant Not to Sue/Reservation of Rights) and KNREPC may exercise its reservation of rights after the Senior Executive Committee has concluded its deliberations (as set forth below in paragraph B. 5.).

A. Informal Dispute:

Subject to the limitations set forth elsewhere in this Agreement, informal dispute resolution may be invoked by any Party for any action which leads to or generates a dispute. A Party who wishes to invoke dispute resolution shall do so by first issuing a written statement of informal dispute. For disputes concerning review of a Primary Document, the disputing Party must issue the written statement of informal dispute within thirty (30) Days after the period established for review of a Primary Document pursuant to Section XX (Review/Comment On Draft/Primary Documents) of this Agreement. The written statement of informal dispute shall set forth the nature of the dispute, the work affected by the dispute, the disputing Party's position with respect to the dispute, and the information the disputing Party is relying upon to support its position. A Secondary Document may only be disputed at the time the corresponding D2 Primary Document is submitted.

During informal dispute, the disputing Party shall engage the other Parties in informal dispute resolution among the Project Managers and/or their immediate supervisors. During the informal dispute resolution process, the Parties shall meet as many times as are necessary to discuss and attempt resolution of the dispute. Except as otherwise set forth below, the informal dispute resolution period shall be limited to thirty (30) Days from receipt of the written statement of informal dispute by the Parties. The informal dispute resolution period may automatically be extended for an additional fifteen (15) Days if requested by any of the Parties.

B. Formal Dispute:

1. If agreement cannot be reached on any issue during the informal dispute resolution process, then the disputing Party shall forward, no later than fifteen (15) Days after the end of the informal dispute resolution period, a written statement of formal dispute to the Dispute Resolution Committee (DRC), thereby elevating the dispute to the DRC for resolution. The date of the written statement of formal dispute shall serve as the date for initiation of formal dispute.

2. The DRC will serve as a forum for resolution of disputes for which agreement has not been reached through informal dispute resolution. The Parties shall each designate one individual and an alternate to serve on the DRC. The

individuals designated to serve on the DRC shall be employed at a policy level (Senior Executive Service or equivalent). The EPA designated member on the DRC is the Waste Management Division (WMD) Director, EPA Region IV. DOE's designated member is the Site Manager, Paducah Site Office. The KNREPC designated member is the Kentucky Division of Waste Management, Director.

3. Following elevation of a dispute to the DRC, the DRC shall have twenty-eight (28) Days to unanimously resolve the dispute and issue a written decision. If the DRC is unable to unanimously resolve the dispute within this twenty-eight (28) Day period, then the KNREPC and EPA representatives on the DRC shall attempt to resolve the dispute. The KNREPC and EPA representatives shall have five (5) additional Days to resolve the dispute and issue a written decision. If the KNREPC and EPA DRC representatives are unable to reach a decision within this five Day period, then the written statement of dispute shall be forwarded to the Senior Executive Committee (SEC) for resolution. Alternatively, if DOE is not satisfied with the decision reached by KNREPC and EPA, then DOE may, within ten (10) days of receiving notice of the decision, elevate the dispute to the SEC for resolution.

4. The SEC will serve as the forum for resolution of disputes for which agreement has not been reached by the DRC or disputes elevated pursuant to Paragraph 3 above. The EPA

representative on the SEC is the Regional Administrator of EPA Region IV. The DOE representative on the SEC is the Manager of Oak Ridge Operations. The KNREPC representative on the SEC is the Commissioner of KDEP. The SEC members shall, as appropriate, confer, meet, and exert their best efforts to resolve the dispute and issue a written decision. If unanimous resolution of the dispute is not reached within twenty-eight (28) Days, then the KNREPC and EPA representatives on the SEC will attempt to resolve the dispute. The KNREPC and EPA representatives shall have five (5) additional Days to resolve the dispute and issue a written decision. If DOE is not satisfied with the decision reached by KNREPC and EPA, then DOE may, within ten (10) days of receiving notice of the decision, elevate the dispute to the EPA Administrator for resolution.

5. If the KNREPC and EPA representatives are unable to reach a decision, then KNREPC, may, within ten (10) days of the conclusion of the SEC's deliberations, issue a written notice to EPA and DOE, exercising its reservation of rights as set forth in Section XL (Covenant Not To Sue/Reservation of Rights). Provided, however, that in the event KNREPC elects to exercise its reservation of rights, KNREPC agrees to continue to participate informally (e.g., either in person, telephonically, in writing, etc., as appropriate) in discussions pertaining to the matter under dispute. The continued participation of the

Commonwealth shall in no way affect the Commonwealth's election of its reservation of rights and shall not be construed as limiting or affecting the Commonwealth's authority under RCRA and KRS 224, and the Commonwealth may, during the discussions, pursue any enforcement or other action it deems appropriate. Whether or not KNREPC elects to exercise its Reservation of Rights, the EPA Region IV Regional Administrator shall issue a written position on the dispute. DOE and/or KNREPC (if KNREPC has not exercised its reservation of rights) may, within ten (10) Days of the Regional Administrator's issuance of EPA's position, issue a written notice elevating the dispute to the Administrator of EPA for resolution in accordance with all applicable laws and procedures. In the event that neither DOE nor KNREPC (if KNREPC has not exercised its reservation of rights) elect to elevate the dispute to the EPA Administrator within the designated ten (10) Day elevation period, DOE and the KNREPC shall be deemed to have agreed with the Regional Administrator's written position with respect to the dispute.

6. Upon elevation of a dispute to the EPA Administrator pursuant to Subsection B.4 or B.5, the Administrator will review and resolve the dispute within twenty-eight (28) Days. Upon request and prior to resolving the dispute, the Administrator shall meet and confer with the Secretary of DOE and/or the Secretary of KNREPC to discuss the

issue(s) under dispute. Upon resolution, the Administrator shall provide all Parties with a written final decision setting forth resolution of the dispute. With the prior concurrence of DOE, the duties of the Administrator set forth in this Subsection may be delegated to the Assistant Administrator for Enforcement and Compliance Assurance.

7. The pendency of any dispute under this Section shall not affect DOE's responsibility for timely performance of the work required by this Agreement, except that the time period for completion of work affected by such dispute shall be extended for a period of time usually not to exceed the actual time taken to resolve any good faith dispute in accordance with the procedures specified herein. All elements of the work required by this Agreement which are not affected by the dispute shall continue and be completed in accordance with the applicable schedule.

8. When dispute resolution is in progress, work affected by the dispute will immediately be discontinued if the WMD Director for EPA, Region IV or the Director of the Kentucky Division of Waste Management (KDWM) requests, in writing, that work related to the dispute be stopped because, in EPA or KNREPC's opinion, such work is inadequate or defective, and such inadequacy or defect is likely to yield an adverse effect on human health or the environment, or is likely to have a

substantial adverse effect on the remedy selection or implementation process. To the extent possible, EPA or KNREPC shall give DOE prior notification that a work stoppage request is forthcoming. After stoppage of work, if DOE believes that the work stoppage is inappropriate or may have potential significant adverse impacts, then DOE may meet with the WMD Director or the Director of KDWM to discuss the work stoppage. The final written decision of the WMD Director or the Director of KDWM will be submitted to DOE within fifteen (15) Days and may be subject to formal dispute resolution immediately. Such dispute may be brought directly to either the DRC or the SEC, at the discretion of DOE, EPA or KNREPC.

9. Within thirty-five (35) Days of resolution of a dispute pursuant to the procedures specified in this Section, DOE shall incorporate the resolution and final determination into the appropriate plan, schedule or procedures and proceed to implement this Agreement according to the amended plan, schedule or procedures.

10. Resolution of a dispute pursuant to this Section of this Agreement constitutes a final resolution of said dispute. All Parties shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to this Section of this Agreement (if KNREPC has not exercised its reservation of rights). Any final resolution of a dispute pursuant to this

Agreement shall be incorporated into this Agreement and shall become a term and condition of this Agreement. Nothing herein shall be construed as a limitation upon KNREPC's reservation of rights pursuant to Section XL (Covenant Not to Sue/Reservation of Rights) or DOE's reservation of removal authority as set forth in Section X (Removal Actions) of this Agreement. Provided, however, that in the event KNREPC exercises its reservation of rights under this Agreement, any final decision by EPA under this Section shall be binding and have effect only as between EPA and DOE, and DOE reserves its right to raise any and all defenses as to KNREPC that it might otherwise have in the absence of such decision.

11. Resolution of disputes may include a determination of the length of any time extensions which are necessary.

12. Pursuant to this Section, all or a portion of a dispute may be elevated.

13. Authorities set forth to members of the DRC or SEC may be delegated only to those persons acting for the designated member during a designated member's absence.

14. Resolution of disputes under this Section may be accelerated as provided in Section XL (Covenant Not to Sue/Reservation of Rights) of this Agreement. Moreover, for disputes relating to Emergency and Time Critical Removal Actions only, the informal dispute resolution period shall be limited to

fifteen (15) Days, with no extension. Furthermore, if, consensus is not reached amongst the parties during the informal dispute resolution period, then within five (5) Days of the end of the informal dispute resolution period, the disputing party shall forward a written statement of formal dispute directly to the SEC. The members of the SEC may agree to shorten their twenty-eight (28) day deliberation period to such time frame as is mutually agreed upon given the exigencies of the situation.

XXVI. DESIGNATED PROJECT MANAGERS

A. EPA, DOE, and KNREPC will each designate Project Managers to coordinate the implementation of this Agreement and shall notify each other in writing of the designation. Each Party may change its designated Project Manager by notifying the other Parties in writing.

B. Daily communications between EPA, DOE, and KNREPC shall be between Project Managers. All documents, including reports, agreements, and other correspondence, concerning the activities performed pursuant to the terms and conditions of this Agreement, shall be distributed in a manner consistent with Section XXIV (Notification) of this Agreement. EPA, DOE and KNREPC Project Managers will coordinate with the Managers identified under Section XXIV (Notification) of this Agreement to ensure timely submission of all documents subject to a schedule or deadline established under this Agreement. Each Project Manager shall be

responsible for assuring the internal dissemination and processing of all communications and documents received from the other Project Managers.

XXVII. QUALITY ASSURANCE/SAMPLING AVAILABILITY/DATA MANAGEMENT

A. The Parties shall make available to each other, upon request, results of sampling, tests, or other data generated by this Agreement. All quality-assured data, or summaries of all quality-assured data, from all samples collected, analyzed, and reported shall be available no later than thirty (30) Days after the analyses have been received and validated.

B. At the request of the EPA and/or the KNREPC Project Manager, DOE shall allow split or duplicate samples to be taken by EPA or KNREPC during sample collection conducted pursuant to this Agreement. Upon request by DOE, EPA and KNREPC shall submit to DOE copies of records and other documents, including sampling and monitoring data, that are relevant to oversight activities. All requirements of the AEA, 42 U.S.C. § 2011, et seq., and all Executive Orders concerning the handling of unclassified controlled nuclear information, restricted data, and national security information, including the "need to know" requirement, shall be applicable to any grant of access to classified information, including sample collection, under provisions of this Agreement.

C. The Parties intend to integrate all data and Release

characterization studies generated pursuant to this Agreement . All data and studies produced under this Agreement shall be managed and presented in accordance with the requirements contained in a D1 Data Management Plan (DMP) to be developed by DOE and submitted to EPA and KNREPC within ninety (90) Days of the effective date of this Agreement for review in accordance with Section XX (Review/Comment on Draft/Final Documents) of this Agreement. The Final DMP shall be appended to the SMP. DOE shall maintain one consolidated data base for the Site which includes all data/studies generated pursuant to this Agreement. Such data base(s) will be operational within six (6) months after the effective date of this Agreement. These data bases may be maintained in electronic form provided however, that hard copies of all data/studies and related documents are made available upon request.

XXVIII. ACCESS/DATA/DOCUMENT AVAILABILITY

A. Without limitation on any authority conferred on EPA or KNREPC by statute, regulation or other agreement, EPA, KNREPC and/or their authorized representatives shall have authority to enter the Site at all reasonable times, with or without advance notification for the purpose of inspecting records, logs, and other documents relevant to implementation of this Agreement; reviewing the progress of DOE, its contractors, and lessees in carrying out the activities under this Agreement; conducting,

sampling and analyses which EPA or KNREPC deem necessary; and verifying data submitted to EPA and KNREPC by DOE. DOE shall honor all reasonable requests for access to the Site made by EPA or KNREPC. When on-site, EPA and KNREPC shall comply with OSHA Hazardous Waste Operations and Emergency Response rules, where applicable, and DOE's site health and safety requirements. EPA and KNREPC access shall be subject to the applicable requirements of the AEA, 42 U.S.C. § 2011, et seq., and Executive Orders concerning the handling of unclassified controlled nuclear information, restricted data, and national security information. Upon request by EPA or KNREPC, DOE shall submit to EPA and KNREPC copies of records, and other documents, including sampling and monitoring data, that are relevant to oversight activities.

B. To the extent that activities pursuant to this Agreement must be carried out on property other than PGDP property, DOE agrees to use its best efforts, including exercising its authority, if necessary, to obtain access pursuant to Section 104(e) of CERCLA, 42 U.S.C. §6904(e), Section 3004(v) of RCRA and KRS 224.10-100(10) from the present owners and/or lessees. DOE shall use its best effort to obtain access agreements which shall provide reasonable access for DOE, EPA, and KNREPC and their representatives, and other appropriate state regulatory agencies. Pursuant to 40 CFR 264.101(c), DOE is not relieved of all responsibility to conduct off-site response actions when off-site

access is denied. The appropriateness of on-site measures to address such off-site Releases will be determined considering site-specific circumstances.

C. DOE shall use its best efforts to obtain written access agreements with respect to non-DOE property upon which monitoring wells, pumping wells, treatment facilities, or other facilities may be located, to carry out response actions under this Agreement. The agreements shall provide that no conveyance of title, easement, or other interest in the property shall be consummated without provisions for the continued operation of such wells, treatment facilities, or other response actions on the property. The access agreements shall also provide that the owners of any property where monitoring wells, pumping wells, treatment facilities or other response actions are located shall notify EPA, KNREPC and DOE by certified mail, at least thirty (30) Days prior to any conveyance of the property owner's interest in the property and of the provisions made for the continued operation of the monitoring wells, pumping wells, treatment facilities or other response actions installed pursuant to this Agreement. In the event DOE is unable to obtain access within sixty (60) Days after the access is sought, DOE shall promptly notify EPA and KNREPC regarding both the lack of access and the efforts undertaken to obtain such access. DOE shall submit proposed modification(s) to this Agreement to EPA and

KNREPC in response to such inability to obtain access.

D. Information, records, or other documents (including D1 primary and secondary documents) produced under the terms of this Agreement by EPA, KNREPC, and DOE shall be available to the public except (a) those identified to EPA and KNREPC by DOE as classified, or unclassified but controlled, within the meaning of and in conformance with the AEA or (b) those that could otherwise be withheld pursuant to the Freedom of Information Act, the Privacy Act, or the Kentucky Open Records Act, unless expressly authorized for Release by the originating agency. Documents or information so identified shall be handled in accordance with those regulations. If no claim of confidentiality accompanies information which is submitted to any Party, then the information may be made available to the public without further notice to the originating Party.

E. Notwithstanding any provision of this Agreement, all requirements of the AEA, as amended, and all Executive Orders concerning the handling of unclassified controlled nuclear information, restricted data and national security information, including the "need to know" requirement, shall be applicable to any access to information or facilities covered under the provisions of this Agreement. The EPA and KNREPC reserve their right to seek or to otherwise obtain access to such information or facilities in accordance with applicable law.

XXIX. EXTENSIONS

A. Either a timetable and deadline or a schedule including schedules within a Work Plan, shall be extended upon receipt of a timely request for extension and when good cause exists for the requested extension. If an extension due to good cause affects any enforceable deadline in Appendix C, the Agreement shall be modified according to Section XXXIX (Modification of Agreement). A request for an extension by a Party shall be timely if it is made in writing (or orally followed within ten (10) Days by a written request) prior to the deadline or scheduled deliverable date. Any oral or written request shall be provided to the other Parties pursuant to Section XXIV (Notification). The request shall specify:

1. The timetable and deadline or the schedule that is sought to be extended;
2. The length of the extension sought;
3. The good cause(s) for the extension; and
4. Any related timetable and deadline or schedule that would be affected if the extension were granted.

B. Good cause exists for an extension when sought in regard to:

1. An event of force majeure;
2. A delay caused by another Party's failure to meet any requirement of this Agreement;
3. A delay caused by the good faith invocation of

dispute resolution or the initiation of judicial action;

4. A delay caused, or which is likely to be caused, by the grant of an extension in regard to another timetable and deadline or schedule;

5. A delay caused by Additional Work agreed to by the Parties; and

6. Any other event or series of events mutually agreed to by the Parties as constituting good cause.

C. Delays caused by the failure of DOE to adequately coordinate its activities with the USEC shall not be considered good cause for an extension.

D. Absent agreement of the Parties with respect to the existence of good cause, the Parties may seek and obtain a determination through the dispute resolution process of whether or not good cause exists.

E. For extension requests by DOE, EPA and KNREPC shall use the following procedures:

1. Within twenty-one (21) Days of receipt of a written request for an extension of a timetable and deadline or a schedule, the EPA and KNREPC shall advise all Parties in writing of their respective positions on the request. To the extent that EPA and KNREPC fail to respond to DOE's request within the 21 Day period, then beginning on the 22nd Day, DOE shall have a day for day extension until such time as EPA and KNREPC either concur

with the extension request or issue a statement of nonconcurrency. If EPA or KNREPC do not concur with the requested extension, they shall include in their statement of nonconcurrency an explanation of the basis for their position.

2. If there is consensus among the Parties that the requested extension is warranted, then DOE shall extend the affected timetable and deadline or schedule accordingly. If there is no consensus among the Parties as to whether all or part of the requested extension is warranted, the timetable and deadline or schedule shall not be extended except in accordance with a determination resulting from the dispute resolution process.

3. Within fourteen (14) Days of receipt of a statement of nonconcurrency with the requested extension, DOE may invoke dispute resolution. If DOE does not invoke dispute resolution within fourteen (14) Days of receipt of a statement of nonconcurrency, then DOE shall be deemed to have accepted EPA's or KNREPC's nonconcurrency and the existing schedule.

4. A timely and good faith request for an extension shall suspend any assessment of stipulated penalties or application for judicial enforcement of the affected timetable and deadline or schedule until a decision is reached on whether the requested extension will be approved. If dispute resolution is invoked and the requested extension is denied because it was

not brought in good faith, stipulated penalties may be assessed and may accrue from the date of the original timetable, deadline, or schedule. Following the grant of an extension, an assessment of stipulated penalties, as defined in Section XLIII (Stipulated Penalties), or an application for judicial enforcement may be sought only to compel compliance with the timetable and deadline or schedule as most recently extended.

F. For extension requests by EPA and KNREPC, if no Party invokes dispute resolution within twenty-one (21) Days after receipt of written notice of the requested extension, the extension shall be deemed approved.

XXX. FIVE YEAR REVIEW

Consistent with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and in accordance with this Agreement, DOE agrees that if the selected, final RAS for any operable unit, including selected alternatives entailing institutional controls with remedial action, result in Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents remaining at the Site above levels that allow for unlimited use and unrestricted exposure in accordance with Section 300.430(f)(4)(ii) of the NCP, DOE will submit to EPA and KNREPC a review of the RAS no less often than once every five (5) years (Five Year Review) after the initiation of such RAS (i.e., date of issuance of final-ROD) for as long as the site remains on the

NPL to assure that human health and the environment are being protected by the RAs being implemented. To facilitate the Five Year Review process for multiple OUs, the Five Year Reviews shall be synchronized as follows: reviews which are required for RA OUs will be conducted every five years starting from the initiation of the RA for the first OU. Every five years thereafter, all subject OU RAs which were started prior to the next Five Year Review date, shall be included in the next Five Year Review. For OU RAs which started after the most recent Five Year Review, the level of the review shall be commensurate to the completeness of the RA and the quantity of operation and maintenance data collected.

If, based on the Five Year Review, it is the judgment of EPA or KNREPC that additional action or modification of a RA is appropriate in accordance with Sections 104, 106 or 120 of CERCLA, 42 U.S.C. §§ 9604, 9606, or 9620, the RCRA Permits or KRS 224 Subchapter 46, then EPA or KNREPC shall require DOE to submit a proposal to implement such additional or modified actions, which shall be subject to review and approval by EPA and KNREPC.

Any dispute under this Section shall be resolved under Section XXV (Resolution of Disputes) of this Agreement.

XXXI. RETENTION OF RECORDS

DOE shall preserve, during the duration of this Agreement and for a minimum of ten (10) years after the termination and

satisfaction of this Agreement, the complete Administrative Record, post-ROD primary and secondary documents and reports. After this ten (10) year period, DOE shall notify EPA and KNREPC at least ninety (90) Days prior to the destruction of any such records or documents. Upon request by EPA or KNREPC, DOE shall make available any such records or copies of such records.

XXXII. ADMINISTRATIVE RECORD

A. DOE shall establish and maintain the CERCLA Administrative Record for the Site for each Operable Unit (hereinafter, collectively referred to as the "Administrative Record"). A complete copy of the Administrative Record shall be available to the public at DOE Environmental Information Center in Kevil, Kentucky. In addition, copies of the current index to the Administrative Record and selected documents from the Administrative Record shall be available at other locations, as specified in the approved Community Relations Plan.

B. EPA shall maintain its Administrative Record for the EPA RCRA Permit issued pursuant to HSWA, as required under 40 CFR §§124.9 and 124.18. KNREPC shall maintain its Administrative Record for the Kentucky Hazardous Waste Permit, as required under 401 KAR 38:050.

C. The selection of each response action shall be based on the CERCLA Administrative Record, in accordance with Section 113(k) of CERCLA, 42 U.S.C. § 9613(k), the NCP, and any

regulations promulgated pursuant to that Section, KRS 224 Subchapter 46 and any applicable guidance, and the Administrative Records referenced under Subparagraph B of this Section to the Agreement. A copy of the CERCLA Administrative Record or a complete index thereof shall be maintained at EPA's Region IV office in Atlanta, Georgia.

D. Upon request by EPA or KNREPC, DOE shall provide copies of documents generated or possessed by DOE which are included in the CERCLA Administrative Record to the requesting Party. EPA and KNREPC shall provide DOE with copies of documents generated by each agency which should be included within the CERCLA Administrative Record.

E. Upon establishment of the CERCLA Administrative Record, DOE shall provide EPA and KNREPC with an index of the Administrative Record. The index shall identify the documents which will comprise the Administrative Record including each decision document for each particular response action.

F. DOE shall provide EPA and KNREPC, in its fiscal year quarterly written progress reports, a periodic update of the index of the Administrative Record that includes any changes or additions to the Record. The Project Managers shall review the Administrative Record Index quarterly to ensure that the Administrative Record is current and complete.

G. EPA shall provide DOE with guidance on establishing and

maintaining the CERCLA Administrative Record as EPA develops guidance.

XXXIII. PUBLIC PARTICIPATION

A. The Parties agree that work conducted under this Agreement, including an Engineering Evaluation/Cost Analysis (as described in Appendix D to this Agreement) for a Removal Action or Proposed Plans for RA at the Site, shall comply with the public participation requirements of CERCLA, including Section 117 of CERCLA, 42 U.S.C. § 9617, the NCP, RCRA and KRS 224 (as applicable), all applicable guidance developed by EPA, all applicable Kentucky hazardous waste laws, and the principles of the Federal Facility Environmental Restoration Dialogue Committee Final report dated April 1996. This shall be achieved through implementation of the approved Community Relations Plan (CRP) prepared and implemented by DOE. A D1 CRP must be submitted to EPA and KNREPC within sixty (60) Days of the effective date of this Agreement for review in accordance with Section XX (Review/Comment On Draft/Primary Documents) of this Agreement and shall include procedures for solicitation of public comment and dissemination of information to the PGDP Site Specific Advisory Board. The Parties agree that the CRP shall, to the extent practicable, coordinate the public participation requirements of CERCLA, RCRA and KRS 224 for activities undertaken pursuant to this Agreement. A major permit modification, including the

required public participation procedures, to incorporate a final remedy upon completion of the RFI/CMS for a Potential OU, shall be carried out in accordance with Condition II.G. of the EPA RCRA Permit and Condition IV.G. of the Kentucky Hazardous Waste Permit. The Parties may integrate public participation requirements of other Federal and Kentucky environmental laws on a case-by-case basis.

B. Excluding imminent hazard situations, any Party issuing an official news release with reference to any of the work required by this Agreement shall advise the other Parties of such news release and the contents thereof at least two (2) business Days before the issuance of such news release.

C. Nothing in this Agreement shall be construed to preclude any Party from responding to public inquiries at any time.

XXXIV. RECOVERY OF EXPENSES

A. EPA Resources

EPA shall take all necessary steps and make efforts to obtain timely funding to meet its obligations under this Agreement. Notwithstanding any other provision of this Agreement, in the event that EPA determines that sufficient funds have not been appropriated to meet any post fiscal year 1996 commitments established by this Agreement, EPA may terminate this Agreement by written notice to DOE and KNREPC.

B. Reimbursement of KNREPC Expenses

1. DOE agrees to reimburse Kentucky for all costs incurred by Kentucky specifically related to the implementation of this Agreement at the Site, provided these costs either: 1) are not inconsistent with the NCP or 2) constitute fees payable to KNREPC. Costs to be reimbursed as described in this paragraph shall not be deemed inconsistent with the NCP solely because such costs are not specifically addressed in the NCP.

2. A separate funding agreement between DOE and Kentucky will be executed. The separate funding agreement between DOE and KNREPC is the specific mechanism for the transfer of funds between DOE and KNREPC for payment of the costs referred to in Subsection B.1. and provides a mechanism for the resolution of any disputed costs between DOE and Kentucky.

3. For the purposes of budget planning only, Kentucky shall provide to DOE, before the beginning of the fiscal year, a written estimate of Kentucky's projected costs to be incurred in implementing the Agreement in the upcoming fiscal year.

4. Kentucky reserves all rights it has to recover any other past and future costs incurred by Kentucky in connection with CERCLA activities conducted at PGDP.

5. In the event of a substantial change in Kentucky's costs incurred specifically related to the implementation of this Agreement, and a significant change in the scope of the project, KNREPC and DOE agree to renegotiate the amounts contained in the

separate funding agreement to reflect such change proportionate to the circumstances. The amount and schedule of payment of these costs will be negotiated with consideration for DOE's multi-year funding cycle.

XXXV. CLAIMS AND PUBLICATION

A. DOE agrees to assume full responsibility for the remediation of the Site in accordance with CERCLA, the NCP, RCRA Sections 3004(u) and (v) and 3008 (h), and KRS 224 Subchapter 46. However, nothing in this Agreement shall constitute or be construed as a release by KNREPC, DOE, or EPA of any claims, causes of action, or demand in law or equity against any person, firm, partnership, or corporation not a signatory to this Agreement for any liability which it may have arising out of or related in any way to the generation, storage, treatment, handling, transportation, Release, or disposal of any Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents found at, taken to, or taken from the Site.

B. This Agreement does not constitute any decision or preauthorization by EPA of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2), for any person, agent, contractor, or consultant acting for DOE.

C. EPA and KNREPC shall not be held as a party to any contract entered into by DOE to implement the requirements of

this Agreement.

D. This Agreement shall not restrict EPA or KNREPC from any legal, equitable, administrative, or response action for any matter not part of the work covered by this Agreement.

E. DOE, KNREPC and EPA shall provide a copy of this Agreement to appropriate contractors, subcontractors, laboratories, and consultants retained to conduct any portion of the work performed pursuant to this Agreement prior to beginning work to be conducted under this Agreement.

F. Nothing in this Agreement shall be considered an admission by any Party with respect to any unrelated claims by any Party or any claims by persons not a Party to this Agreement.

XXXVI. ORDER OF PREFERENCE

In the event of any inconsistency between the Sections of this Agreement and the Appendices to this Agreement, the Sections of this Agreement shall govern unless specifically stated otherwise in this Agreement.

XXXVII. COMPLIANCE WITH LAWS

Nothing in this Agreement shall be construed to relieve DOE or its representative(s) of the obligation to comply with all applicable Federal laws, regulations and Executive Orders, and all applicable Kentucky and local laws and regulations.

XXXVIII. FORCE MAJEURE

A. (i) A Force Majeure shall mean any event arising from causes beyond the control of a Party that could not have been overcome or avoided by due diligence of that Party and that causes a delay in or prevents the performance of any obligation under this Agreement, including, but not limited to:

1. Acts of God; fire; war; insurrection; civil disturbance; or explosion;
2. Unanticipated breakage or accident to machinery, equipment or lines of pipe despite reasonably diligent maintenance;
3. Adverse weather conditions that could not be reasonably anticipated; unusual delay in transportation;
4. Restraint by court order or order of public authority;
5. Inability to obtain, after exercise of reasonable diligence, any necessary authorizations, approvals, permits, or licenses due to action or inaction of any governmental agency or authority other than DOE; and
6. Delays caused by compliance with applicable statutes or regulations governing contracting, procurement or acquisition procedures, despite the exercise of reasonable diligence.

(ii) Delay caused in whole or in part by the United States Enrichment Corporation shall not be presumed to be a force

majeure event.

(iii) Failure to submit a timely Primary Document due to a delay in submission of a related Secondary Document shall not be presumed to be a force majeure event

B. A Force Majeure shall also include any strike or other labor dispute, whether or not within the control of the Parties affected thereby. Force Majeure shall not include increased costs or expenses of Response Actions, whether or not anticipated at the time such Response Actions were initiated.

C. The Parties agree that Subsection A.2 (entirely), Subsection A.3 ("delay in transportation" provision only), Subsection A.4 ("order of public authority"), and Subsection A.6 (entirely) above, do not create any presumptions that such events arise from causes beyond the control of a Party. KNREPC and EPA specifically reserve the right to withhold their concurrence to any extensions which are based on such events which are not entirely beyond the control of DOE pursuant to terms of Section XXIX (Extensions), or to contend that such events do not constitute Force Majeure in any action to enforce this Agreement.

D. Notwithstanding the provisions of Section XXIX (Extensions) hereof, if any event occurs or has occurred that may delay the performance of any obligation under this Agreement, whether or not caused by a force majeure event, DOE shall notify orally EPA and KNREPC within 72 hours of when DOE first knew or

should have known that the event might cause a delay. Within 10 Days thereafter, DOE shall provide in writing to EPA and KNREPC an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; DOE's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of DOE, such event may cause or contribute to an endangerment to public health, welfare or the environment. DOE shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude DOE from asserting any claim of force majeure for that event. DOE shall be deemed to have notice of any circumstance of which their contractors or subcontractors had or should have had notice.

E. Extension requests based on a force majeure shall proceed pursuant to Section XXIX (Extensions) hereof.

XXXIX. MODIFICATION OF AGREEMENT

A. This Agreement may be modified by agreement of all the Parties. All major modifications shall be in writing and shall be effective upon the date on which such modifications are signed by EPA. EPA shall be the last signatory on any major modifications to this Agreement.

B. Except as provided in Subsection C, no informal advice, guidance, suggestions, or comments by EPA or KNREPC shall be construed as relieving DOE of any obligation required by this Agreement.

C. Modifications shall be considered major modifications under Subsection A, if designated "major" by any Party. If any party disagrees with the designation of a modification as major, it may invoke dispute resolution pursuant to Section XXV of this Agreement. A major modification is subject to public participation to the extent required by DOE's Community Relations Plan under Section XXXIII (Public Participation) of this Agreement. All other modifications shall not be considered major and can be made informally upon consent of those Parties designated to receive notice in accordance with Section XXIV (Notification) of this Agreement. Informal modifications shall be confirmed in writing within ten (10) Days following the consent of the Project Managers.

D. Any modification to this Agreement, its appendices,

or any primary or secondary document previously approved as final by EPA and KNREPC which incorporates new innovative technology shall be considered a major modification to this Agreement. The Parties agree that such modifications will be made in the future where appropriate to incorporate those new technologies which achieve compliance with this Agreement, either at reduced cost, or in a shorter period of time.

E. The Parties understand that changes in law or regulations may occur which affect the obligations or rights of the parties under this Agreement or change the nature of this Agreement. The Parties agree to consider modifications to this Agreement to address the effects of any such changes.

XL. COVENANT NOT TO SUE/RESERVATION OF RIGHTS

A. In consideration for DOE's compliance with this Agreement, and based on the information known to the Parties on the effective date of this Agreement, EPA agrees that compliance with this Agreement, including payment of stipulated penalties, shall stand in lieu of any administrative, legal and equitable remedies against DOE available to it regarding the currently known Releases or threatened Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents at the Site which are the subject of an RI/FS or Removal Notification and which will be addressed by a RA or Removal Action provided for under this Agreement. Except as

otherwise provided in this Agreement, and based on the information known to the Parties on the effective date of this Agreement, KNREPC agrees that compliance with this Agreement shall satisfy DOE's obligations arising under the RCRA Permits and the corrective action provisions of KRS 224 Subchapter 46 regarding the currently known releases or threatened releases of hazardous wastes or hazardous constituents at the Site which are the subject of an RI/FS or Removal Notification and which will be addressed by a Response Action approved by KNREPC and provided for under this Agreement. Provided, however, that this provision shall not apply where Kentucky has exercised its reservation of rights pursuant to paragraph B.5 of Section XXV (Resolution of Disputes) and Section L (Covenant Not to Sue/Reservation of Rights) of this Agreement. KNREPC agrees, at a minimum, to proceed through the SEC level of the dispute resolution process provided in Section XXV (Resolution of Disputes) of this Agreement prior to taking any other action available to it regarding the currently known Releases or threatened Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents at the Site which are the subject of an RI/FS or Removal Notification and which will be addressed by a RA or Removal Action provided for under this Agreement. Nothing in this Agreement shall preclude either the EPA or KNREPC from exercising any administrative, legal and

equitable remedies available (including the assessment of civil penalties and damages if such are otherwise legally assessable) to require additional response actions by the DOE in the event that the implementation of the requirements of this Agreement is no longer protective of public health and the environment or for matters not specifically part of the work covered by this Agreement. Moreover, nothing herein shall limit KNREPC's or EPA's authority to challenge a Removal Action pursuant to 42 U.S.C. §9622(e)(6) and KRS 224 Subchapter 46. Nothing in this Agreement shall be deemed to confer or waive authority reserved to DOE under the Atomic Energy Act, 42 U.S.C. 2011 et seq.. Additionally, in the event of enforcement action being taken against DOE under this Agreement, including, but not limited to actions under Sections X or XIV of this Agreement, DOE reserves all rights, including any appeal rights it may have.

B. Except to the extent expressly provided for elsewhere in this Agreement, this Agreement shall not be construed as waiving any right or authority that KNREPC may have and shall not be construed as a bar or release of any claim, cause of action or demand in law or equity including any right KNREPC may have to assess penalties for DOE's failure to comply with any term or condition of this Agreement or any timetable or deadline established pursuant to this Agreement. Notwithstanding the provisions of Section XXV (Resolution of Disputes) or any other

Section of this Agreement, in the event that KNREPC issues a written notice exercising its reservation of rights pursuant to Section XXV (Resolution of Disputes), paragraph B.5., or is dissatisfied with any final decision issued by the Administrator pursuant to Section XXV (Resolution of Disputes), KNREPC may take any action concerning the disputed matter which would be available in the absence of this Agreement, including imposing its requirements directly on DOE, defending the basis for those requirements, and contesting EPA's conflicting requirements, if any.

C. Notwithstanding this Section, or any other Section of this Agreement, KNREPC shall retain any right it may have to obtain judicial review of any final decision of EPA on selection of a remedial action or ARARs determination pursuant to any authority KNREPC may have under Sections 113, 121(e)(2), 121(f), and 310 of CERCLA, 42 U.S.C. §§ 9613, 9621(e)(2), 9621(f), and 9659.

D. If dispute resolution concerning any matter requires a decision by the Regional Administrator or the Administrator, the Parties may mutually agree to accelerate that matter through the dispute resolution procedures of Section XXV (Resolution of Disputes) under this Agreement to the Administrator. Notwithstanding the provisions of Section XXV (Resolution of Disputes) or any Section of this Agreement, in the event that

KNREPC elects to exercise its reservation of rights pursuant to Section XXV (Resolution of Disputes), paragraph B.5., or is dissatisfied with any final decision issued by the Administrator pursuant to Section XXV (Resolution of Disputes), KNREPC may take any action concerning the disputed matter which would be available in the absence of this Agreement.

E. This Covenant Not to Sue shall not be deemed to affect any rights which any non-party may have.

F. DOE is not released from any claim for damages for injury to, destruction of, or loss of natural resources pursuant to CERCLA Section 107. This Agreement does not in any way release DOE from any claims any party may have for natural resource damage assessments or for damages to natural resources.

G. Nothing in this Agreement shall preclude KNREPC from exercising any administrative or judicial remedies available in the event or upon the discovery of a violation of, or noncompliance with, any provision of RCRA or KRS 224 Chapter 46 including any disposal or release of hazardous waste or hazardous constituents which are not addressed by this Agreement. Moreover, nothing in this Agreement shall be interpreted to excuse DOE from complying with the requirements of RCRA, KRS 224 Subchapter 46 and the regulations promulgated thereunder for matters not addressed by this Agreement.

H. For matters within the scope of this Agreement,

KNREPC and EPA reserve the right to bring any enforcement action against other potentially liable parties, including contractors, subcontractors and/or operators, if DOE fails to comply with this Agreement. For matters outside this Agreement, and any actions related to response costs, KNREPC and EPA reserve the right to bring any enforcement action against other potentially responsible parties, including DOE's contractors, subcontractors and/or operators, regardless of DOE's compliance with this Agreement.

XLI. NATURAL RESOURCE DAMAGES

DOE and other Kentucky and Federal trustees shall act on behalf of the public as the trustees for the natural resources present at PGDP. In this capacity, DOE shall be responsible for notifying other Kentucky and Federal trustees and for assessing damages (injury, destruction or loss of natural resources) resulting from Releases of Hazardous Substances, pollutants or contaminants, or Hazardous Wastes and Hazardous Constituents on PGDP, and for implementation of measures designed to mitigate such damages. These authorities are vested in DOE (as specified in Executive Order 12580) pursuant to Section 107(f) of CERCLA and Section 311(f) of the Federal Water Pollution Control Act. As a trustee for natural resources on PGDP, DOE Kentucky, U.S. Fish and Wildlife Service, Tennessee Valley Authority and the Department of Interior, shall have the authority to:

1. Assess damages to public natural resources following the procedures provided by 43 CFR Part 11 and subsequent rule making; and

2. Devise and implement a plan to restore, replace or acquire the equivalent of such resource pursuant to CERCLA. Such a plan shall be consistent, to the degree possible, with applicable Record(s) of Decision under this Agreement.

DOE shall notify the appropriate Federal and Kentucky natural resource trustees as required by Section 104(b)(2) of CERCLA, 42 U.S.C. § 9604(b)(2), and Section 2(e)2 of Executive Order 12580. Except as provided herein, DOE is not released from any liability which it may have pursuant to any provisions of Kentucky and Federal law, including any claim for damages for liability to the destruction of, or loss of natural resources.

XLII. PROPERTY TRANSFER

In the event that DOE determines to enter into any contract for the sale or transfer of any of the Site, DOE shall comply with the requirements of Section 120(h) of CERCLA, 42 U.S.C. § 9620(h), in effectuating that sale or transfer, including all notice requirements. In addition, DOE shall include notice of this Agreement in any document transferring ownership or operation of the Site to any subsequent owner and/or operator of any portion of the Site and shall notify EPA and KNREPC of any such sale or transfer at least ninety (90) Days prior to such

sale or transfer. No change in ownership of the Site or any portion thereof or notice pursuant to Section 120(h)(3)(B) of CERCLA, 42 U.S.C. § 9620(h)(3)(B), shall relieve DOE of its obligation to perform pursuant to this Agreement. No change of ownership of the Site or any portion thereof shall be consummated by DOE without provision for continued maintenance of any containment system, treatment system, or other response action(s) installed or implemented pursuant to this Agreement. This provision does not relieve DOE of its obligations under 40 C.F.R. Part 270 and KRS 224 §46, 401 KAR Chapter 38.

XLIII. STIPULATED PENALTIES

A. In the event that DOE fails to submit a Primary Document, as identified in Section XX (Review/Comment On Draft/Primary Documents), to EPA and KNREPC pursuant to the appropriate enforceable timetable or deadline included in Appendix C in accordance with the requirements of this Agreement, or fails to comply with a term or condition of this Agreement which relates to the actual performance of an interim or final RA, or a Removal Action, DOE may be assessed a stipulated penalty in an amount not to exceed \$5,000 for the first week (or part thereof), and \$10,000 for each additional week (or part thereof) for which a failure set forth in this Subsection occurs. Stipulated penalties will accrue from the date of the missed deadline or the date the noncompliance occurs, as appropriate.

B. Upon determining that DOE has failed in a manner set forth in Subsection A, above, EPA and KNREPC shall jointly notify DOE in writing. If the failure in question is not already subject to dispute resolution at the time such notice is received, then DOE shall have fifteen (15) Days after receipt of the notice to invoke dispute resolution on the question of whether the failure did in fact occur or was caused by force majeure. DOE shall not be liable for the stipulated penalty assessed by EPA and KNREPC if the failure is determined, through the dispute resolution process, not to have occurred or to have occurred as the result of a force majeure event. In the case of a stipulated penalty assessed only by EPA or only by the Commonwealth, the assessing party shall notify DOE, in writing, of the failure. If the failure in question is not already subject to dispute resolution at the time such notice is received, then DOE shall have fifteen (15) Days after receipt of the notice to invoke dispute resolution on the question of whether the failure did in fact occur or was caused by force majeure. DOE shall not be liable for the stipulated penalty assessed by EPA or KNREPC if the failure is determined, through the dispute resolution process, not to have occurred or to have occurred as the result of a force majeure event. No assessment of a stipulated penalty pursuant to this Section shall be final until the conclusion of dispute resolution procedures related to

the assessment of the stipulated penalty. DOE's invocation of dispute resolution shall toll the obligation to pay the assessed penalty, but shall not toll the accrual of stipulated penalties. Assessment of a stipulated penalty by EPA and/or KNREPC shall preclude the agency (ies) assessing such stipulated penalty from seeking to also impose a statutory penalty arising from DOE's failure to meet the same regulatory milestone. Furthermore, in the event of a noncompliance or failure under this Agreement by DOE, neither EPA nor KNREPC individually shall seek penalties under both CERCLA and RCRA/KRS 224 for the same instance of noncompliance or failure.

C. DOE's annual report to Congress required by Section 120(e)(5) of CERCLA, 42 U.S.C. § 9620(e)(5), shall include, with respect to each final assessment of a stipulated penalty against DOE under this Agreement, each of the following:

1. The facility responsible for the failure;
 2. A statement of the facts and circumstances giving rise to the failure;
 3. A statement of any administrative or other corrective action taken at the relevant facility, or a statement of why such measures were determined to be inappropriate;
 4. A statement of any additional action taken by or at the facility to prevent recurrence of the same type of failure;
- and

5. The total dollar amount of the stipulated penalty assessed for the particular failure.

D. Stipulated penalties assessed pursuant to this Section shall be payable as follows:

Unless otherwise agreed between EPA and the State, any stipulated penalty assessed by both the State and EPA pursuant to this part shall be divided equally between the Hazardous Substances Response Trust Fund and KNREPC in accordance with KRS 224.10-250. Any stipulated penalty assessed only by EPA shall be payable to the Hazardous Substances Response Trust Fund. Any stipulated penalty assessed only by the Commonwealth shall be payable to KNREPC in accordance with KRS 224.10-250. The parties recognize that stipulated penalties assessed by KNREPC are assessed pursuant to RCRA and KRS 224, and not pursuant to CERCLA. Stipulated penalties payable to the Hazardous Substances Response Trust Fund shall be paid from funds authorized and appropriated for that purpose. DOE shall make specific budget requests for payment of assessed stipulated penalties. DOE shall pay stipulated penalties assessed by the Commonwealth of Kentucky under this part within 120 days of the date DOE receives the Commonwealth's demand for payment of a finally-assessed penalty unless KNREPC agrees to a longer schedule. DOE shall request, for stipulated penalties assessed by EPA, specific authorization and appropriation of any such penalty in its budget submission

for FY +1, unless DOE has already submitted its final budget for that budget year to OMB, in which case DOE shall request such specific authorization and appropriation in its FY +2 budget submittal.

E. Failure of DOE to comply with the requirements of Section XVIII.D. (Budget Planning) or Section XVIII.E. (Budget Execution for the Current FY) shall not be subject to stipulated penalties under this Section.

F. In no event shall this Section give rise to a stipulated penalty in excess of the amount set forth in Section 109 of CERCLA, 42 U.S.C. § 9609.

G. This Section shall not affect DOE's ability to obtain an extension of a timetable, deadline, or schedule pursuant to Section XXIX (Extensions) of this Agreement.

H. Nothing in this Agreement shall be construed to render any officer or employee of DOE personally liable for the payment of any stipulated penalty assessed pursuant to this Section.

I. Nothing in this Section shall preclude EPA or KNREPC from pursuing any other sanction that may be available to them, in lieu of stipulated penalties, for DOE's failure to meet any requirement of this Agreement. Nor shall anything in this Section preclude EPA or KNREPC from seeking or imposing any injunctive relief that may be available to them to compel DOE's

compliance with this Agreement.

XLIV. ENFORCEABILITY

A. The Parties agree that:

1. Upon the effective date of this Agreement, any standard, regulation, condition, requirement, or order which has become effective under CERCLA and is incorporated into this Agreement is enforceable by any person pursuant to Section 310 of CERCLA, 42 U.S.C. § 9659, and any violation of such standard, regulation, condition, requirement, or order will be subject to the civil penalty provisions under Sections 310(c) and 109 of CERCLA, 42 U.S.C. §§ 9659(c) and 9609; and

2. All Appendix C timetables or deadlines and Site Management Plan CS OU timetables or deadlines associated with the development, implementation and completion of the RI/FS shall be enforceable by any person pursuant to Section 310 of CERCLA, 42 U.S.C. § 9659, and any violation of such timetables or deadlines will be subject to civil penalties under Sections 310(c) and 109 of CERCLA, 42 U.S.C. §§ 9659(c) and 9609;

3. All terms and conditions of this Agreement which relate to interim or final RAs and removal actions (including IM and Corrective Actions), including corresponding timetables, deadlines, or schedules, and all work associated with interim or final RAs and removal actions (including IM and Corrective Actions), shall be enforceable by any person pursuant to Section

310(c) of CERCLA, 42 U.S.C. § 9659(c), and any violation of such terms or conditions will be subject to the civil penalties provisions under Sections 310(c) and 109 of CERCLA, 42 U.S.C. §§ 9659(c) and 9609; and

4. Any final resolution of a dispute pursuant to Section XXV (Resolution of Disputes) of this Agreement which establishes a term, condition, timetable, deadline, or schedule shall be enforceable by any person pursuant to Section 310(c) of CERCLA, 42 U.S.C. § 9659(c), and any violation of such term, condition, timetable, deadline or schedule will be subject to civil penalties under Section 310(c) and 109 of CERCLA, 42 U.S.C. §§ 9659(c) and 9609.

5. Requirements of this Agreement that are requirements of RCRA and KRS 224 Subchapter 46 shall be enforceable by any person, including the Commonwealth of Kentucky, pursuant to any rights which may exist under section 7002(a)(1)(A) of RCRA. DOE agrees that the Commonwealth of Kentucky or one of its agencies is a "person" within the meaning of section 7002(a) of RCRA. Nothing in this paragraph shall be construed as being in contravention of CERCLA §113(h).

6. Requirements of this Agreement that relate to RCRA or KRS 224 Subchapter 46 may be enforced by KNREPC as requirements of a Corrective Action Order on Consent issued pursuant to KRS 224.46-530.

B. Nothing in this Agreement shall be construed as authorizing any person to seek judicial review of any action or work where review is barred by any provisions of CERCLA, including Section 113(h) of CERCLA, 42 U.S.C. § 9613(h). However, nothing in this paragraph shall prevent KNREPC from taking any action or exercising any right KNREPC may have to enforce any requirement of RCRA or KRS 224 Subchapter 46 and its corresponding regulations.

C. The Parties agree that all Parties shall have the right to enforce the terms of this Agreement.

XLV. TERMINATION AND SATISFACTION

A. To the extent that remedial response actions are conducted in OUs under the provisions of this Agreement, following completion of all response actions at an OU, as specified in the ROD for that OU, and upon written request by DOE, EPA and KNREPC will send to DOE a written notice that the response actions selected in the ROD have been completed in accordance with the requirements for that operable unit. This notice shall not serve as written notice of termination and satisfaction of the entire Agreement described under Subsection B of this Section.

B. To the extent that remedial preliminary assessment actions are conducted pursuant to the provisions of this Agreement, following the completion of all response actions

(i.e., removal and RAs), including the comprehensive site-wide operable unit, and upon written request by DOE, EPA, and KNREPC will send to DOE a written notice of satisfaction of the terms of this Agreement within ninety (90) Days of the request. The notice shall state that, in the opinion of EPA and KNREPC, DOE has satisfied all the terms of this Agreement in accordance with the requirements of CERCLA, the NCP, Sections 3004(u) and (v), and 3008(h) of RCRA, 42 U.S.C. § 6928(h), and related guidance, KRS 224 Subchapter 46 and its implementing regulations and applicable state laws and that the work performed by DOE is consistent with the agreed-to response actions.

C. KNREPC may, in its sole discretion, terminate this Agreement upon sixty (60) Days written notice to the other Parties. Termination of the Agreement by KNREPC shall be effective on the 60th Day after such notice, unless KNREPC agrees otherwise in writing before such date. Once termination is effective pursuant to this paragraph, this Agreement shall have no further force or effect as to KNREPC; provided, however, that surviving requirements of this Agreement shall remain enforceable as requirements of a CERCLA § 120 Interagency Agreement between EPA and DOE.

XLVI. EFFECTIVE DATE

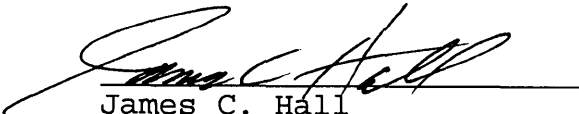
This Agreement shall become effective after it is executed by all the Parties and upon the date set by EPA in written

notification to all Parties that the Agreement has been finally executed and is effective.

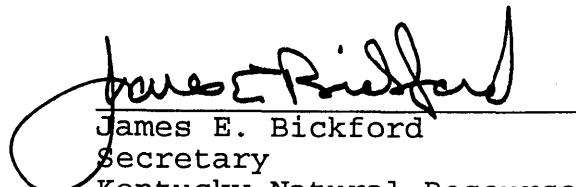
This Agreement will not be executed until such time as all public comment provided during a forty-five (45) day comment period has been addressed by the Parties and incorporated into the Agreement as appropriate.

IT IS SO AGREED:

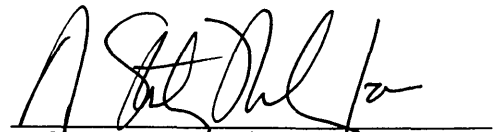
11/19/97
DATE


James C. Hall
Manager
United States Department of
Energy
Oak Ridge Operations Office

12 Dec 1998
DATE


James E. Bickford
Secretary
Kentucky Natural Resources
and Environmental
Protection Cabinet

FEB 13 1999
DATE


John H. Hankinson, Jr.
Regional Administrator
United States Environmental
Protection Agency

APPENDIX A

RCRA/CERCLA Process/Document Comparisons

General Response Process

INVESTIGATION

CERCLA

RI/FS Work Plan

RI Report

FS Report

RCRA

RFI Work Plan

RFI Report

CMS Work Plan

CMS Report

REMEDY SELECTION

Proposed Plan

ROD

Statement of Basis

Permit Mod

REMEDIAL ACTION

RD Work Plan

RD Report

RA Work Plan

Post Con. Report

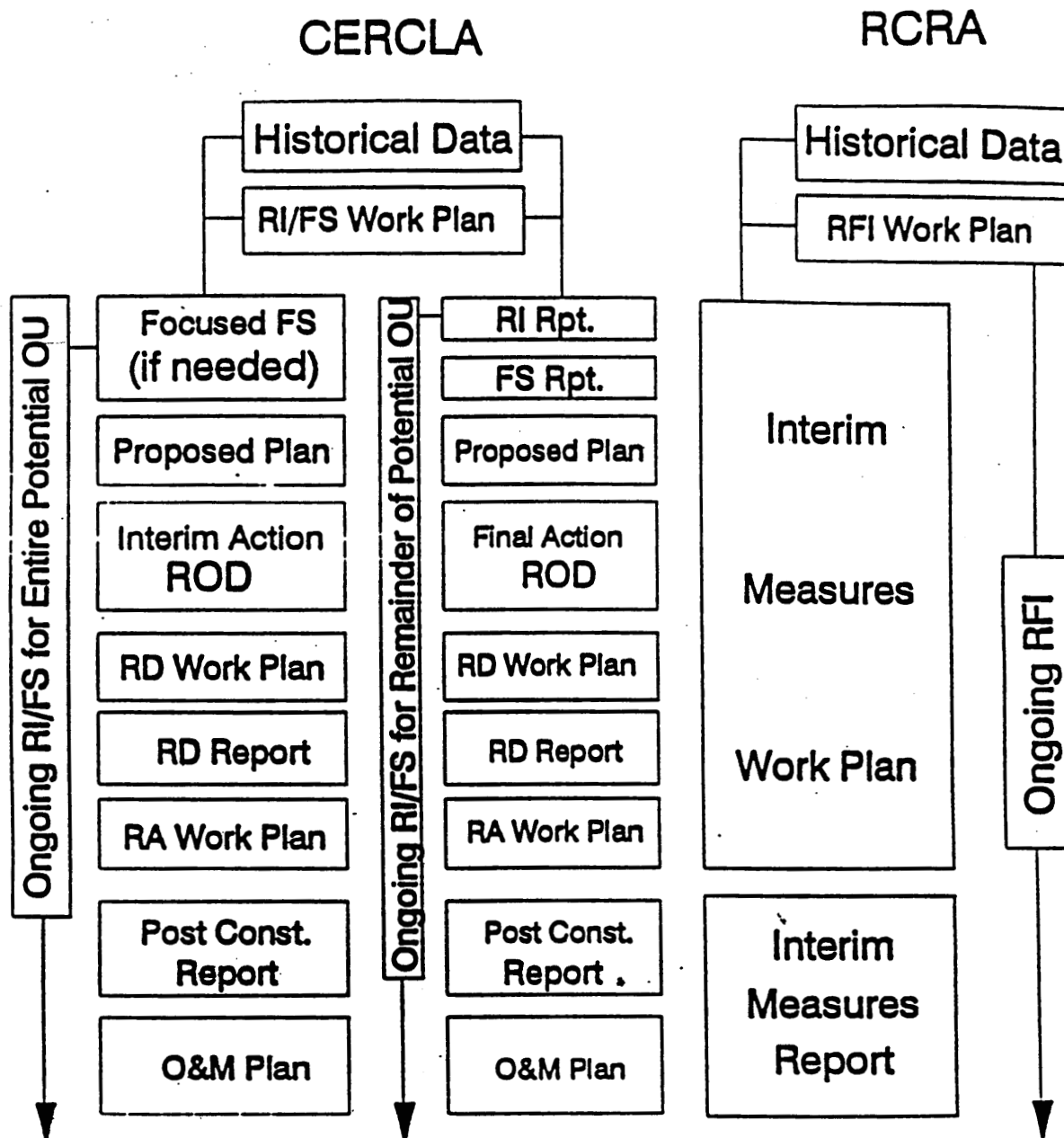
O&M Plan

Final Remed. Rpt

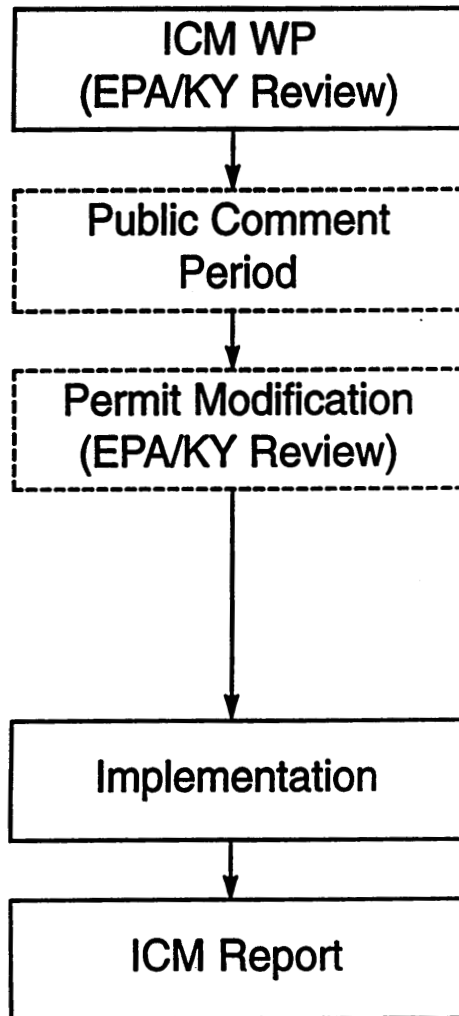
As Specified

In Permit Mod

INTERIM RESPONSE ACTIONS



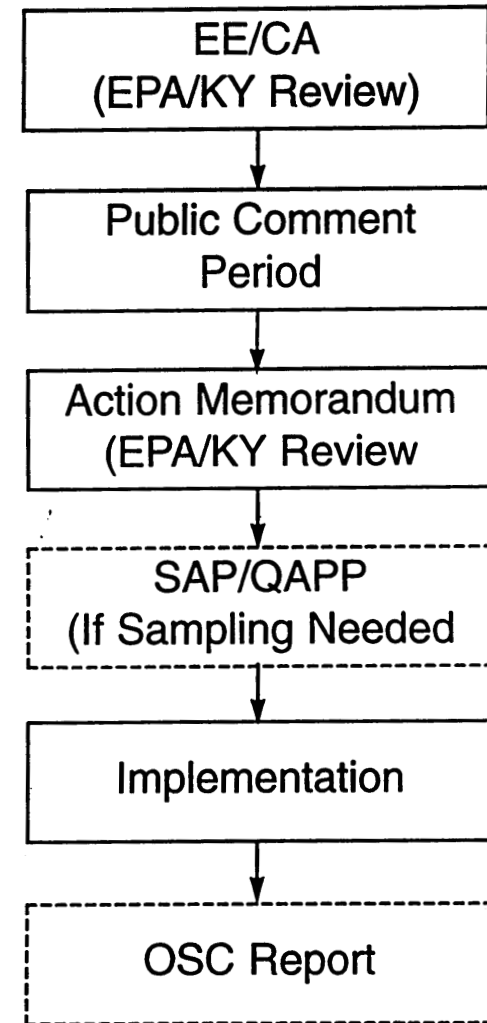
RCRA



Common Requirement

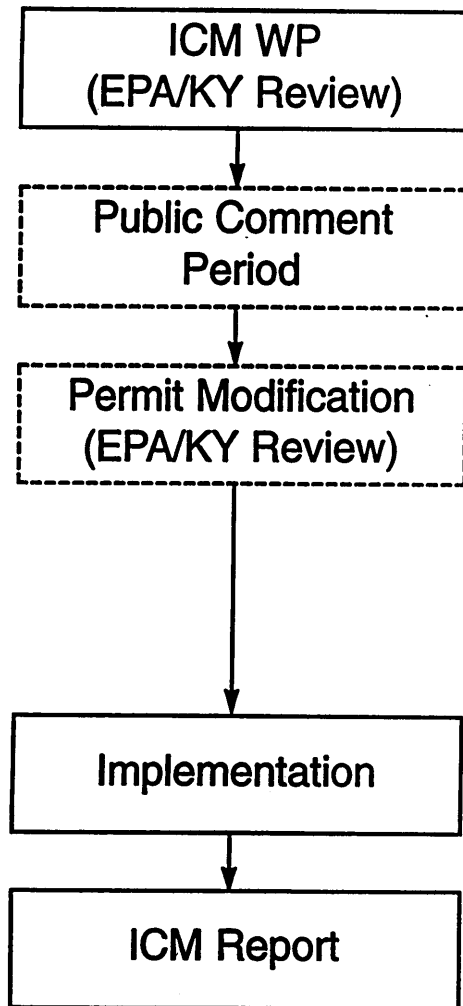
- Alternative(s)/objective
- Schedule
- Design/Specifications
- Public Participation
- Final Alternative Decision
- Perform Action
- Post-action Documentation

CERCLA (Non Time-critical)



----- Optional
———— Required

RCRA



Common Requirement

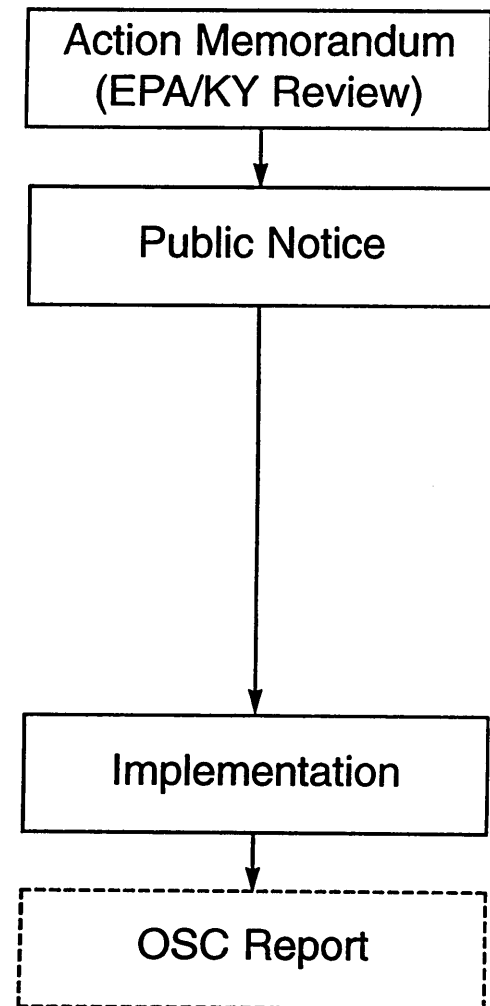
- Alternative(s)/objective

- Perform Action

- Post-action Documentation

----- Optional
_____ Required

CERCLA (Time-critical)



APPENDIX B
RCRA/CERCLA Units List

Appendix B

REVISED 06/03/96

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
1	C-747 OIL LANDFARM
2	C-749 URANIUM BURIAL GROUND
3	C-404 LOW-LEVEL RADIOACTIVE HAZARDOUS WASTE BURIAL GROUND
4	C-747 CONTAMINATED BURIAL YARD
5	C-746-F CLASSIFIED BURIAL YARD
6	C-747-B BURIAL GROUND
7	C-747-A BURIAL GROUND
8	C-746-K INACTIVE SANITARY LANDFILL
9	C-746-S RESIDENTIAL LANDFILL
10	C-746-T INERT LANDFILL
11	C-400 TRICHLOROETHYLENE LEAK SITE
12	C-747-A UF ₄ DRUM YARD
13	C-746-P CLEAN SCRAPYARD
14	C-746-E CONTAMINATED SCRAPYARD
15	C-746-C SCRAPYARD
16	C-746-D CLASSIFIED SCRAPYARD
17	C-616-E SLUDGE LAGOON
18	C-616-F FULL FLOW LAGOON
19	C-410-B NEUTRALIZATION LAGOON
20	C-410-E HF EMERGENCY HOLDING POND
21	C-611-W SLUDGE LAGOON
22	C-611-Y OVERFLOW LAGOON
23	C-611-V LAGOONS
24	C-750-D UNDERGROUND STORAGE TANK
25	C-750 1,000-GALLON WASTE OIL TANK
26	C-400 TO C-404 UNDERGROUND TRANSFER LINE
27	C-722 ACID NEUTRALIZATION TANK
28	C-712 ACID NEUTRALIZATION TANK

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
29	C-746-B TRU STORAGE AREAS
30	C-747-A BURN AREA
31	C-720 COMPRESSOR PIT WATER STORAGE TANK
32	C-728 CLEAN WASTE OIL TANK
33	C-728 MOTOR CLEANING FACILITY
34	C-746-M PCB WASTE STORAGE AREA
35	C-337 PCB WASTE STORAGE AREA
36	C-337 PCB WASTE STAGING AREA
37	C-333 PCB WASTE STAGING AREA
38	C-615 SEWAGE TREATMENT PLANT
39	C-746-B PCB WASTE STORAGE AREA
40	C-403 NEUTRALIZATION TANK
41	C-410-C NEUTRALIZATION TANK
42	C-616 CHROMATE REDUCTION FACILITY
43	C-746-B WASTE CHEMICAL STORAGE AREA
44	C-733 HAZARDOUS WASTE STORAGE AREA
45	C-746-R WASTE SOLVENT STORAGE AREA
46	C-409 HAZARDOUS WASTE PILOT PLANT
46A	C-746-Q HAZARDOUS AND LOW-LEVEL WASTE STORAGE BUILDING
47	C-400 TECHNETIUM STORAGE TANK AREA
48	C-400-A GOLD DISSOLVER STORAGE TANK
49	C-400-B WASTE SOLUTION STORAGE TANK
50	C-400-C NICKEL STRIPPER EVAPORATION TANK
51	C-400-D LIME PRECIPITATION TANK
52	C-400 WASTE DECONTAMINATION SOLUTION STORAGE TANKS
53	C-400 NaOH PRECIPITATION TANK
54	C-400 DEGREASER SOLVENT RECOVERY UNIT
55	C-405 INCINERATOR

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
56	C-540-A PCB WASTE STAGING AREA
57	C-541-A PCB WASTE STAGING AREA
58	NORTH-SOUTH DIVERSION DITCH (OUTSIDE PLT SECURITY AREA)
59	NORTH-SOUTH DIVERSION DITCH (INSIDE PLT SECURITY AREA)
60	C-375-E2 EFFLUENT DITCH (KPDES 002)
61	C-375-E5 EFFLUENT DITCH (KPDES 013)
62	C-375-S6 SOUTHWEST DITCH (KPDES 009)
63	C-375-W7 OIL SKIMMER DITCH (KPDES 008)
64	LITTLE BAYOU CREEK
65	BIG BAYOU CREEK
66	C-375-E3 EFFLUENT DITCH (KPDES 010)
67	C-375-E4 EFFLUENT DITCH (C-340 DITCH)
68	C-375-W8 EFFLUENT DITCH (KPDES 015)
69	C-375-W9 EFFLUENT DITCH (KPDES 001)
70	C-333-A VAPORIZER
71	C-337-A VAPORIZER
72	C-200 UNDERGROUND GASOLINE TANKS
73	C-710 UNDERGROUND GASOLINE TANKS
74	C-340 PCB SPILL SITE
75	C-633 PCB SPILL SITE
76	C-632-B H ₂ SO ₄ STORAGE TANK
77	C-634-B H ₂ SO ₄ STORAGE TANK
78	C-420 PCB SPILL SITE
79	C-611 PCB SPILL SITE
80	C-540 PCB SPILL SITE
81	C-541 PCB SPILL SITE
82	C-531 SWITCHYARD
83	C-533 SWITCHYARD
84	C-535 SWITCHYARD
85	C-537 SWITCHYARD
86	C-631 PUMP HOUSE AND COOLING TOWER

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
87	C-633 PUMP HOUSE AND COOLING TOWER
88	C-635 PUMP HOUSE AND COOLING TOWER
89	C-637 PUMP HOUSE AND COOLING TOWER
90	C-720 UNDERGROUND PETROLEUM NAPTHA PIPE
91	UF ₆ CYLINDER DROP TEST AREA
92	FILL AREA FOR DIRT FROM C-420 PCB SPILL SITE
93	CONCRETE DISPOSAL AREA EAST OF PLANT SECURITY AREA
94	KOW TRICKLING FILTER AND LEACH FIELD
95	KOW BURN AREA
96	COOLING TOWER SCRAP WOOD PILE
97	C-601 DIESEL SPILL (previously AOC #A)
98	C-400 BASEMENT SUMP (previously AOC #B)
99	C-745 KELLOG BUILDING SITE (previously AOC #C)
100	FIRE TRAINING AREA (previously AOC #D)
101	C-340 HYDRAULIC SYSTEM (previously AOC #E)
102	PLANT STORM SEWER (previously 96a, 96b, and 96c)
103	CONCRETE RUBBLE PILE (1)
104	CONCRETE RUBBLE PILE (2)
105	CONCRETE RUBBLE PILE (3)
106	CONCRETE RUBBLE PILE (4)
107	CONCRETE RUBBLE PILE (5)
108	CONCRETE RUBBLE PILE (6)
109	CONCRETE RUBBLE PILE (7)
110	CONCRETE RUBBLE PILE (8)
111	CONCRETE RUBBLE PILE (9)
112	CONCRETE RUBBLE PILE (10)
113	CONCRETE RUBBLE PILE (11)
114	CONCRETE RUBBLE PILE (12)
115	CONCRETE RUBBLE PILE (13)
116	CONCRETE RUBBLE PILE (14)
117	CONCRETE RUBBLE PILE (15)

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
118	CONCRETE RUBBLE PILE (16)
119	CONCRETE RUBBLE PILE (17)
120	CONCRETE RUBBLE PILE (18)
121	CONCRETE RUBBLE PILE (19)
122	CONCRETE RUBBLE PILE (20)
123	CONCRETE RUBBLE PILE (21)
124	CONCRETE RUBBLE PILE (22)
125	CONCRETE RUBBLE PILE (23)
126	CONCRETE RUBBLE PILE (24)
127	CONCRETE RUBBLE PILE (25)
128	CONCRETE RUBBLE PILE (26)
129	CONCRETE RUBBLE PILE (27)
130	C-611 UST - 550 GALLON GAS TANK (WEST OF C-611)
131	C-611 UST - 50 GALLON GAS TANK (EAST OF C-611)
132	C-611 UST - 2000 GALLON OIL TANK (NORTH OF C-611)
133	C-611 UST - UNKNOWN SIZE, GROUTED TANK (SOUTH OF C-611)
134	C-611 UST - 1000 GALLON DIESEL/GAS TANK (SOUTHEAST OF C-611)
135	C-333 PCB SOIL CONTAMINATION (NORTH SIDE OF C-333)
136	C-740 TCE SPILL SITE (NORTHWEST CORNER, C-740 CONCRETE PAD)
137	C-746-A INACTIVE PCB TRANSFORMER/SUMP
138	C-100 SOUTH SIDE BERMS (C-611/615 SLUDGE ?)
139	C-746-A1 (UST)
140	C-746-A2 (UST)
141	C-720 INACTIVE TCE DEGREASER
142	C-750-A (GASOLINE UST)
143	C-750-B (DIESEL UST)
144	C-746-A HAZARDOUS AND MIXED WASTE STORAGE FACILITY
145	RESIDENTIAL/INERT LANDFILL BARROW AREA
146	CONCRETE RUBBLE PILE (40)
147	CONCRETE RUBBLE PILE (41)
148	CONCRETE RUBBLE PILE (42)

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
149	CONCRETE RUBBLE PILE (43)
150	CONCRETE RUBBLE PILE (44)
151	CONCRETE RUBBLE PILE (45)
152	CONCRETE RUBBLE PILE (46)
153	C-331 PCB SOIL CONTAMINATION - WEST SIDE
154	C-331 PCB SOIL CONTAMINATION - SOUTHEAST SIDE
155	C-333 PCB SOIL CONTAMINATION - WEST SIDE
156	C-310 PCB SOIL CONTAMINATION - WEST SIDE
157	KOW TOLUENE SPILL AREA
158	CHILLED WATER SYSTEM LEAK SITE
159	C-746-H3 STORAGE PAD
160	C-745 CYLINDER YARD SPOILS AREA - PCB SOIL CONTAMINATION
161	C-743-T01 TRAILER SITE - SOIL BACKFILL
162	C-617-A SANITARY WATER LINE - SOIL BACKFILL
163	C-304 BUILDING/HVAC PIPING SYSTEM - SOIL BACKFILL
164	KPDES OUTFALL DITCH 017 FLUME - SOIL BACKFILL
165	C-616-L PIPELINE AND VAULT SOIL CONTAMINATION
166	C-100 TRAILER COMPLEX SOIL CONTAMINATION (EAST SIDE)
167	C-720 WHITEROOM SUMP
168	KPDES OUTFALL DITCH 012
169	C-410-E HF VENT SURGE PROTECTION TANK
170	C-729 ACETYLENE BUILDING DRAIN PITS
171	C-617-A LAGOON
172	C-726 SANDBLASTING FACILITY
173	C-746-A TRASH SORTING FACILITY
174	C-745-K LOW LEVEL STORAGE AREA
175	CONCRETE RUBBLE PILE (28)
176	C-331 RCW LEAK NORTHWEST SIDE
177	C-331 RCW LEAK EAST SIDE
178	C-724-A PAINT SPRAY BOOTH

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
179	PLANT SANITARY SEWER SYSTEM
180	OUTDOOR FIRING RANGE (WKWMA)
181	OUTDOOR FIRING RANGE (PGDP)
182	WESTERN PORTION OF YELLOW WATER LINE
183	McGRAW UST
184	CONCRETE RUBBLE PILE (29)
185	C-611-4 HORSESHOE LAGOON
186	C-751 FUEL FACILITY
187	C-611 SEPTIC SYSTEM
188	C-633 SEPTIC SYSTEM
189	C-637 SEPTIC SYSTEM
190	C-337-A SEWAGE TREATMENT AERATION TANK
191	C-333-A SEWAGE TREATMENT AERATION TANK
192	C-710 ACID INTERCEPTOR PIT
193	McGRAW CONST. FACILITIES (SOUTH-SIDE, CYLINDER YARDS)
194	McGRAW CONST. FACILITIES (SOUTH-SIDE)
195	CURLEE ROAD CONTAMINATED SOIL MOUND
196	C-746-A SEPTIC TANK
197	CONCRETE RUBBLE PILE (30)
198	C-410-D AREA SOIL CONTAMINATION
199	BIG BAYOU MONITORING STATION
200	SOIL CONTAMINATION SOUTH OF TSCA WASTE STORAGE FACILITY
201	NORTHWEST GROUNDWATER PLUME
202	NORTHEAST GROUNDWATER PLUME
203	C-400 SUMP
204	DYKES ROAD HISTORICAL STAGING AREA
205	EASTERN PORTION OF YELLOW WATER LINE

APPENDIX C

Current Year Timetables and Deadlines

**FFA -- Appendix C
FY 2001
Enforceable Timetables and Deadlines**

<u>Subproject</u>	<u>Deliverable</u>	<u>Submittal Date</u>
FFA	FFA Progress Report ²	10/30/00
GWOU ROD 3 (PTZ TS)	TS Field Mob ²	11/01/00
FFA	D1 Site Management Plan ¹	11/15/00
SWOU N/S Ditch	D1 Remedial Alternatives Analysis	12/04/00
GWOU ROD 1 (C-720)	D1 Proposed Plan ¹	05/17/01
SWOU Drum Mountain	D1 RA Report ¹	05/04/01
SWOU Scrap Metal	D1 Action Memo ¹	06/15/01 ³
SWOU N/S Ditch	D1 ROD ¹	03/28/01
FFA	FFA Progress Report ²	04/30/01
SWOU N/S Ditch	D1 RD/RA WP ⁴	04/30/01
D&D OU C-410 Facility	D1 EE/CA ¹	05/15/01
Scrap Metal Removal Project	D1 Aluminum Ingot RA WP ¹	05/30/01
GWOU ROD 1 (C-720)	D1 ROD ¹	11/21/01
CERCLA Waste Disposal Options	D1 FS Report ¹	06/25/01
SWOU N/S Ditch	ROD Signature ¹	06/26/01
SWOU Sediment Controls	D1 EE/CA ¹	06/30/01
SWOU N/S Ditch	RA Field Mob ¹	07/01/01
Scrap Removal Project	D1 Infrastructure RA WP ¹	08/10/01
D&D OU C-410 Facility	D1 Action Memo ¹	08/30/01
	D1 RA WP ¹	08/30/01
CERCLA Waste Disposal Options	D1 Proposed Plan ¹	09/08/01

¹ Denotes primary document/activity designated as an enforceable timetable and deadline under the FFA.

² Denotes a secondary document/activity.

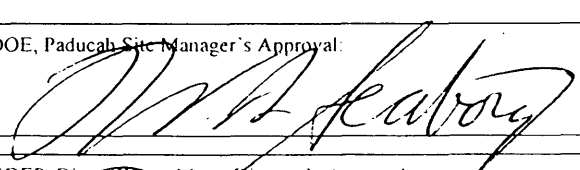
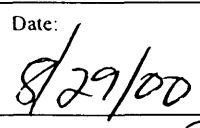
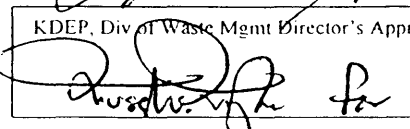
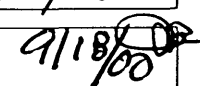
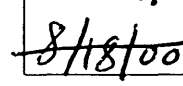
³ Based on close of public comment period on EE/CA on 05/21/01.

⁴ The action for scrap metal and N/S Ditch will be implemented in a phased approach and may consist of multiple RA WPs and design packages that are submitted subsequent to the above milestones.

MODIFICATION TO THE PADUCAH FEDERAL FACILITY AGREEMENT
according to the terms of Section XXXIX.

Modification requested by: W. Don Seaborg		Date: 08/25/00	
Requester's Organization: Department of Energy			
Section to be modified: Appendix C			
Reason for modification: Reflect Schedule Adjustment			
Modification requested:			
<u>Project</u>	<u>Deliverable</u>	<u>Current FFA Date</u>	<u>Proposed Date</u>
North South Ditch	EE/CA ¹	09/01/00	12/04/00
D&D OU	Strategic Plan	09/01/00	09/22/00
Footnote No. 1 – The EE/CA documentation original proposed for the North South Ditch will be modified to support the selection of a remedial action consisting of an evaluation of Remedial Alternatives and a Proposed Plan.			

Determination by any one of the three Project Managers that a modification is major will require that the modification be submitted for public participation to the extent required by DOE's Community Relations Plan under Section XXXIII.

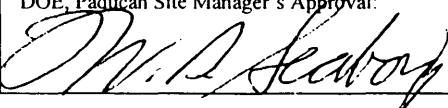

DOE, Paducah Site Manager's Approval: 	Major modification?		Date: 
	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
KDEP, Div of Waste Mgmt Director's Approval: 	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Date:  
EPA, Region 4, Remedial Project Manager's Approval:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Date:

Note: Return to DOE after signature for the Administrative Record and to initiate distribution to FFA "Controlled" copies.

MODIFICATION TO THE PADUCAH FEDERAL FACILITY AGREEMENT
according to the terms of Section XXXIX.

Modification requested by: W. Don Seaborg		Date: 08/25/00
Requester's Organization: Department of Energy		
Section to be modified: Appendix C		
Reason for modification: Reflect Schedule Adjustment		
Modification requested:		
<u>Project</u>	<u>Deliverable</u>	<u>Current FFA Date</u>
North South Ditch	EE/CA ¹	09/01/00
D&D OU	Strategic Plan	09/01/00
<u>Proposed Date</u>		
		12/04/00
		09/22/00
<p>Footnote No. 1 – The EE/CA documentation original proposed for the North South Ditch will be modified to support the selection of a remedial action consisting of an evaluation of Remedial Alternatives and a Proposed Plan.</p>		

Determination by any one of the three Project Managers that a modification is major will require that the modification be submitted for public participation to the extent required by DOE's Community Relations Plan under Section XXXIII.

DOE, Paducah Site Manager's Approval: 	Major modification? YES NO	<input type="checkbox"/> <input checked="" type="checkbox"/>	Date: 8/29/00
KDEP, Div of Waste Mgmt Director's Approval: 		<input type="checkbox"/> <input type="checkbox"/>	Date:
EPA, Region 4, Remedial Project Manager's Approval: 		<input type="checkbox"/> <input checked="" type="checkbox"/>	Date: 9/12/00

Note: Return to DOE after signature for the Administrative Record and to initiate distribution to FFA "Controlled" copies.

APPENDIX D
Document Outlines

RI/FS SCOPING DOCUMENT

1. A summary of how the RI/FS is to be conducted in a manner consistent with §300.430(a) and (b) of the NCP.
2. A summary of the following information:
 - 2.1 Existing data pertaining to the characteristics of the release or potential release.
 - 2.1.1 Previous investigations
 - 2.1.2 Historical records
 - 2.2 Conceptual model of release
 - 2.2.1 Identify potential release and exposure pathways
 - 2.2.2 Identify potential contaminants of concern
 - 2.3 Identify likely response scenarios, potentially applicable and applicability of presumptive remedies and innovative technologies
 - 2.4 Identify need for limited data collection efforts to assist RI/FS scoping
 - 2.5 Identify the type, quality, and quantity (i.e., DQOs) of the data to be collected during the RI/FS
 - 2.6 Initiate the identification of potential federal and state ARARs and, as appropriate, other criteria, advisories, or guidance to be considered
3. Applicability of streamlined response actions:
 - 3.1 Removals
 - 3.2 Early remedial actions
 - 3.2.1 Interim remedial actions
 - 3.2.2 Final remedial actions

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

**INTEGRATED RI/FS, RFI, AND CORRECTIVE MEASURES STUDY (CMS) WORK PLAN
BASED UPON OUTLINE FROM THE
RFI WORK PLAN FOR WAG 13**

Executive Summary

- 1. Introduction**
 - 1.1 Project Scope**
 - 1.2 Project Objectives and Goals**
 - 1.3 Project DQOs**
 - 1.4 Observational Approach**
- 2. Project Organization and Management Plan**
 - 2.1 Organization, Responsibilities, and Staffing**
 - 2.2 Project Coordination**
 - 2.3 PGDP Tasks and Implementation Plan**
 - 2.4 Project Schedule**
 - 2.5 RFI Work Plan Activities**
 - 2.6 Field Preparation Activities**
 - 2.7 Field Support Facility**
- 3. Regulatory Setting**
 - 3.1 ACO**
 - 3.2 Environmental Programs**
 - 3.3 RCRA**
 - 3.4 CERCLA/NPL**
 - 3.5 NEPA**
 - 3.6 Investigative Overview**
- 4. Environmental Setting/Site Characterization**
 - 4.1 Location**
 - 4.2 Demography and Land Use**
 - 4.3 General History**
 - 4.4 Regional Geologic Setting**
 - 4.5 Geology of PGDP**
 - 4.6 Hydrogeology**
 - 4.7 Surface Water Hydrology**
 - 4.8 Ecological Setting**
 - 4.9 Climatology**
- 5. Characterization of Site/Previous Analytical Data**
 - 5.1 Area 1**
 - 5.2 Area 2**
 - 5.3 Area 3**

6. Initial Evaluation
 - 6.1 Risk Assessment
 - 6.1.1 Data Evaluation
 - 6.1.2 Exposure Assessment
 - 6.1.3 Toxicity Assessment
 - 6.1.4 Risk Characterization
 - 6.1.5 Preliminary Remediation Goals (RAGS Vol. 1, Part B)
 - 6.1.6 Evaluation of Uncertainties
 - 6.1.7 Ecological Assessment Methods
 - 6.2 Preliminary Data Evaluation
 - 6.2.1 Characterization and Inventory of Wastes
 - 6.2.2 Information Status of Key Assessment Factors
 - 6.2.3 Release Potential from Contaminant Sources
 - 6.3 Sampling Strategy
7. Treatability Studies
 - 7.1 Identification of Treatability Studies Needed
 - 7.2 Description of Study to be Performed
 - 7.3 Additional Site Data Needed for Study or Evaluation
 - 7.4 Schedule for Submission of Treatability Study Work Plan (Section 2 also)
8. Alternatives Development
 - 8.1 Description of the General Approach to Investigating and Evaluating Potential Remedies
 - 8.2 Overall Objectives of the Study
 - 8.3 Preliminary Identification of General Response Actions and Remedial Technologies
 - 8.4 Remedial Alternatives Development Screening
 - 8.5 Detailed Analysis of Remedial Alternatives
 - 8.6 Format for FS/CMS Report (Appendix Document Outlines)
 - 8.7 Schedule/Timing for Conducting the Study (Section 2 also)
9. Field Sampling Plan
 - 9.1 Sampling Media and Methods
 - 9.2 Sample Analysis
 - 9.3 Site-Specific Sampling Plans
 - 9.4 Sampling Procedures
 - 9.5 Documentation
 - 9.6 Sample Location Survey
10. Health and Safety Plan*
11. Quality Assurance Project Plan*
12. Data Base Management Plan*

13. Waste Management Plan*

- 13.1 Types of Investigation Derived Waste
- 13.2 Waste Management Tracking Responsibilities
- 13.3 Investigation Derived Waste Request for Disposal, Storage, and Labelling
- 13.4 Transportation and Storage of Investigation Derived Waste
- 13.5 Screening of Analytical Samples
- 13.6 Investigation Derived Waste Characterization Sampling and Analysis
- 13.7 Sample Residuals and Miscellaneous Waste Management
- 13.8 Effect of Land Disposal Restrictions

14. Community Relations Plan*

15. References

Appendices

- A. ARARs
- B. Statistical Evaluation Methods
- C. Miscellaneous Forms
- D. Document Outlines

*Programmatic plans will be submitted, rather than included, in each project work plan.

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

INTEGRATED RFI/RI REPORT

Executive Summary

1. Introduction
 - 1.1 Purpose of Report
 - 1.2 Site Background
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Previous Investigations
 - 1.3 Report Organization
2. Study Area Investigation
 - 2.1 Includes all field activities associated with site characterization. These may include physical and chemical monitoring of some of the following:
 - 2.1.1 Surface Features
 - 2.1.2 Contaminant Source Investigations
 - 2.1.3 Meteorological Investigations
 - 2.1.4 Surface Water and Sediment Investigations
 - 2.1.5 Geological Investigations
 - 2.1.6 Soil and Vadose Zone Investigations
 - 2.1.7 Groundwater Investigations
 - 2.1.8 Human Population Surveys
 - 2.1.9 Ecological Investigations
 - 2.2 If technical memoranda documenting field activities were prepared, they may be included in an appendix and summarized in this report section.
3. Physical Characteristics of the Study Area
 - 3.1 Includes results of the field activities to determine physical characteristics. These may include some of the following:
 - 3.1.1 Surface Features
 - 3.1.2 Meteorology
 - 3.1.3 Surface Water Hydrology
 - 3.1.4 Geology
 - 3.1.5 Soils
 - 3.1.6 Hydrogeology
 - 3.1.7 Demography and Land Use
 - 3.1.8 Ecology
4. Nature and Extent of Contamination
 - 4.1 Presents the results of site characterization, both natural chemical components and contaminants of the following media:
 - 4.1.1 Sources (Lagoons, Sludges, Tanks, etc.)
 - 4.1.2 Soils and Vadose Zone
 - 4.1.3 Groundwater
 - 4.1.4 Surface Water and Sediments
 - 4.1.5 Air

- 5. Fate and Transport
 - 5.1 Potential Routes of Migration (i.e., Air, Groundwater, etc.)
 - 5.2 Contaminant Persistence
 - 5.2.1 Describe estimated persistence in the study area environment and physical, chemical, and/or biological factors of importance for the media of interest.
 - 5.3 Contaminant Migration
 - 5.3.1 Describe factors affecting contaminant migration for the media of importance (e.g., sorption onto soils, solubility in water, movement of groundwater, etc.).
 - 5.3.2 Describe modeling methods and results, if applicable.
- 6. BRA
 - 6.1 Human Health Evaluation
 - 6.1.1 Exposure Assessment
 - 6.1.2 Toxicity Assessment
 - 6.1.3 Risk Characterization
 - 6.2 Environmental Evaluation
- 7. Summary and Conclusions
 - 7.1 Summary
 - 7.1.1 Nature and Extent of Contamination
 - 7.1.2 Fate and Transport
 - 7.1.3 Risk Assessment
 - 7.2 Conclusions
 - 7.2.1 Data Limitations and Recommendations for Future Work
 - 7.2.2 Recommended RA Objectives

Appendices

- A Technical Memoranda on Field Activities
- B Analytical Data and QA/QC Evaluation Results
- C Risk Assessment Methods

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

INTEGRATED FS/CMS REPORT

Executive Summary

1. Introduction
 - 1.1 Purpose and Organization of Report
 - 1.2 Background Information (Summarized from RI/RFI Report)
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Nature and Extent of Contamination
 - 1.2.4 Contaminant Fate and Transport
 - 1.2.5 BRA
2. Identification and Screening of Technologies
 - 2.1 Introduction
 - 2.2 RA Objectives -

Presents the development of RA objectives for each medium of interest. For each medium, the following should be discussed:

 - 2.2.1 Contaminants of Interest
 - 2.2.2 Allowable Exposure Based upon Risk Assessment (including ARARs)
 - 2.2.3 Development of Remediation Goals
 - 2.3 General Response Actions -

For each medium of interest, describe the estimation of areas or volumes to which treatment, containment, or exposure technologies may be applied.
 - 2.4 Identification and Screening of Technology Types and Process Options -

For each medium of interest, describe:

 - 2.4.1 Identification and Screening of Technologies
 - 2.4.2 Evaluation of Technologies and Selection of Representative Technologies
3. Development and Screening of Alternatives
 - 3.1 Development of Alternatives -

Describes rationale for combination of technologies/media into alternatives.
 - 3.2 Screening of Alternatives (if conducted)
 - 3.2.1 Introduction
 - 3.2.2 Alternative 1
 - 3.2.2.1 Description
 - 3.2.2.2 Evaluation
 - 3.2.3 Alternative 2 (etc.)
 - 3.2.4 Alternative 3 (etc.)
4. Detailed Analysis of Alternatives
 - 4.1 Introduction
 - 4.2 Individual Analysis of Alternatives
 - 4.2.1 Alternative 1
 - 4.2.1.1 Description
 - 4.2.1.2 Assessment

4.2.2 Alternative 2 (etc.)

4.2.3 Alternative 3 (etc.)

4.3 Comparative Analysis

Bibliography

Appendices

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

PROPOSED PLAN/STATEMENT OF BASIS

1. Introduction
 - 1.1 Purpose
 - 1.2 Site Name and Location
 - 1.3 Lead and Support Agencies
 - 1.4 Objectives of the Proposed Plan
2. Site Background
 - 2.1 History of Site Activities that Led to Current Problems at the Site
 - 2.2 The Site Area or Media to be Addressed by the Selected Remedy
3. Scope and Role of the OU or Response Action
 - 3.1 Identify the principal threats posed by conditions at the site.
 - 3.2 Describe the scope of the problems addressed by the preferred alternative and its role within the overall site cleanup strategy.
4. Summary of Site Risks
 - 4.1 Provide a brief overview of the BRA, including the contaminated media, contaminants of concern, exposure pathways and populations, and potential or actual risks.
 - 4.2 Describe how current risks compare with remediation goals.
 - 4.3 Discuss environmental risks.
5. Summary of Alternatives
 - 5.1 Briefly describe each of the alternatives evaluated in the detailed analysis of the FS.
6. Evaluation of Alternatives and the Preferred Alternative
 - 6.1 Identify the preferred alternative.
 - 6.2 Introduce the nine evaluation criteria.
 - 6.3 Summarize the expected performance of the preferred alternative.
 - 6.4 Conformance of preferred alternative to statutory findings and preference for treatment
 - 6.5 Preliminary identification of preferred alternative design criteria and considerations
 - 6.5.1 Special technical problems
 - 6.5.2 Additional engineering/characterization data required
 - 6.5.3 Permits and regulatory requirement
 - 6.5.4 Access, easements, right of way
 - 6.5.5 Environmental impacts
 - 6.5.6 Health and safety requirements
 - 6.6 Time frame for design and implementation of preferred alternative
 - 6.7 General Operation and Maintenance and long-term monitoring requirements of preferred alternative
7. Community Participation
 - 7.1 Public Comment Period
 - 7.2 Public Meetings
 - 7.3 Contact Personnel
 - 7.4 Administrative Record Availability

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

RECORD OF DECISION

1. Declaration
 - Site Name and Location
 - Statement of Basis and Purpose
 - Assessment of the Site
 - Description of the Selected Remedy
 - Statutory Determinations
 - Signature and Support Agency Acceptance of the Remedy
2. Decision Summary
 - 2.1 Site Name and Location
 - 2.2 Site History and Enforcement Activities
 - 2.3 Highlights of Community Participation
 - 2.4 Scope and Role of OU
 - 2.5 Site Characteristics
 - 2.6 Summary of Site Risks
 - 2.8 Description of Alternatives
 - 2.9 Summary of Comparative Analysis of Alternatives
 - 2.10 Selected Remedy
 - 2.11 Statutory Determinations
 - 2.12 Documentation of Significant Changes
 - 2.13 Discussion of any hazardous substances, contaminants or pollutants left on-site and need for Five-Year Review of remedial action
3. Responsiveness Summary
 - 3.1 Community Preferences
 - 3.2 Integration of Comments
4. Remedial Design Schedule With Summary (intended to satisfy Remedial Design Work Plan)
 - 4.1 Purpose
 - 4.2 Implementation of Remedial Design Schedule
 - 4.3 30 Percent Scoping Meeting, 60 Percent Progress Meeting, and 90 Percent Design Report

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

**REMEDIAL DESIGN REPORT
(90 PERCENT DESIGN)**

Based upon 90 percent design:

1. Brief Summary of Action
2. Description of Key Design Features
3. Schedule for Remedial Construction
 - 3.1 Purpose
 - 3.2 Implementation Schedule (intended to satisfy Remedial Action Work Plan)

Appendix

90 Percent Design Drawings

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

POSTCONSTRUCTION REPORT

1. Brief description of how outstanding items noted in the Prefinal Inspection were resolved;
2. Explanation of modifications made during the RA to the original Remedial Design and RA Work Plans, and why these changes were made;
3. As-built and record drawings;
4. Synopsis of the construction work defined in this Agreement and certification that the construction work has been completed; and
5. Capital Cost Estimate.

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

OPERATION AND MAINTENANCE PLAN

1. Equipment start-up and operator training:
 - 1.1 Technical specifications governing treatment systems;
 - 1.2 Requirements for providing appropriate service visits by experienced personnel to supervise the installation, adjustment, start-up, and operation of the systems; and
 - 1.3 Schedule for training personnel regarding appropriate operational procedures once start-up has been successfully completed.
2. Description of normal O&M:
 - 2.1 Description of tasks required for system operation;
 - 2.2 Description of tasks required for system maintenance;
 - 2.3 Description of prescribed treatment or operating conditions; and
 - 2.4 Schedule showing the required frequency for each O&M task.
3. Description of potential operating problems:
 - 3.1 Description and analysis of potential operating problems;
 - 3.2 Sources or information regarding problems; and
 - 3.3 Common remedies or anticipated corrective actions.
4. Description of routine monitoring and laboratory testing:
 - 4.1 Description of monitoring tasks;
 - 4.2 Description of required laboratory tests and their interpretation;
 - 4.3 Required QA/QC; and
 - 4.4 Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.
5. Description of alternate O&M:
 - 5.1 Should system fail, alternate procedures to prevent undue hazard; and
 - 5.2 Analysis of vulnerability and additional resource requirements should a failure occur.
6. Safety Plan:
 - 6.1 Description of precautions to be taken and required health and safety equipment, etc., for site personnel protection; and
 - 6.2 Safety tasks required in the event of systems failure.
7. Description of equipment:
 - 7.1 Equipment identification
 - 7.2 Installation of monitoring components
 - 7.3 Maintenance of site equipment
 - 7.4 Replacement schedule for equipment and installation components
8. Records and reporting:
 - 8.1 Daily operating logs,
 - 8.2 Laboratory records,
 - 8.3 Records of operating cost,
 - 8.4 Mechanism for reporting emergencies,

II-15

- 8.5 Personnel and maintenance records, and
- 8.6 Monthly reports to state/federal agencies (satisfied by the FFA Quarterly Reports).

9. Projected O&M Costs

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

FINAL REMEDIAL ACTION REPORT*

1. Introduction
 - 1.1 General description of site
 - 1.1.1 Location
 - 1.1.2 Description
 - 1.1.3 History
 - 1.2 General Description of Remedy
 - 1.2.1 Components of remedy
 - 1.2.2 Contaminants dealt with
2. Chronology of Events
3. Performance Standards and Construction Quality Control
 - 3.1 Standards
 - 3.2 Results of field sampling
 - 3.3 Location and frequency of tests
 - 3.4 Basis for determination that standards were met
4. Construction Activities
 - 4.1 Narrative description
 - 4.2 Tabular summaries
 - 4.2.1 Quantities excavated
 - 4.2.2 Cleanup levels achieved
 - 4.2.3 Material and equipment used
 - 4.3 Names and roles of major design and remedial action contractors
 - 4.4 Participation by other federal agencies
 - 4.5 Lessons learned
 - 4.5.1 Problems encountered
 - 4.5.2 Options considered
 - 4.5.3 Process used to select solutions
 - 4.5.4 Causes of delays
 - 4.5.5 Innovative solution
 - 4.5.6 Time- or cost-saving measures
5. Final Inspection
 - 5.1 List of inspection Attendees
 - 5.2 Deficiencies found
 - 5.3 Resolution of deficiencies
6. Certification That Remedy is Operational and Functional
 - 6.1 SOW was performed within desired specifications
 - 6.2 Affirmation that performance standards have been met
 - 6.3 Basis for determination

- 7. Operation and Maintenance
 - 7.1 Highlights of operation and maintenance plan
 - 7.2 Potential problems or concerns
- 8. Summary of Project Costs
 - 8.1 Final costs
 - 8.2 Comparison of final costs to original estimate
 - 8.3 Need for and cost of modifications
 - 8.4 Summary of regulatory agency oversight costs

***The Final Remedial Action Report shall be submitted after the O&M Period for each OU.**

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

FINAL SITE REMEDIATION REPORT*

The Final Site Remediation Report shall include the following:

1. Synopsis of the work defined in this Agreement and a demonstration that the performance standards have been attained;
2. Certification that the RA has been completed in full satisfaction of the requirements of this Agreement; and
3. A description of how DOE will operate and maintain the RA.

***The Final Site Remediation Report shall be the Site Delisting Report.**

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

SECONDARY DOCUMENT OUTLINES

PRELIMINARY CHARACTERIZATION SUMMARY REPORT

EXECUTIVE SUMMARY

1. Introduction
 - 1.1 Background
 - 1.2 RFI Process
 - 1.3 PCSR Organization
 2. Screening and Evaluation Methods
 - 2.1 Introduction
 - 2.2 Evaluation Methods
 - 2.3 Background Reference Values
 - 2.4 Risk-Based Screening Values (PRGs)
 - 2.4.1 Site-Specific Exposure Scenarios
 - 2.4.2 Target Risk Levels
 - 2.4.3 Toxicity Values
 - 2.5 Certainty Analysis
 3. PRG/Background Screening Results
 - 3.1 WAG 1
 - 3.1.1 SWMU 1
 - 3.1.2 SWMU 2
 - 3.1.3 SWMU 3
 - 3.2 WAG 2
 - 3.2.1 SWMU 4
 - 3.2.2 SWMU 5
 4. SWMU Summary and Recommendations
 5. References
- Appendix A: Figures
Appendix B: Tables
Appendix C: Preliminary Remediation Goal Calculations
Appendix D: Statistical Evaluation Method for Chemical Sample Results
From the Paducah Site
Appendix E: Laboratory Data Qualifier Definitions

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

**INTEGRATED QUARTERLY REPORTS
COMPILED FROM THE EPA HSWA PERMIT, DRAFT FFA**

- I. Work performed during previous quarter (include summaries of findings and any deviations from the Work Plan):**
- II. Schedules of activities to be taken during upcoming quarter (including projected work/crucial phases of construction):**
- III. Identity and assigned tasks of DOE Contractors for work to be performed for this project:**
- IV. Statement of the manner and extent to which the requirements and time schedules are being met:**
- V. Primary/Secondary Document Tracking System:**
 - A) Documents under review and or preparation for the previous quarter:**
 - B) Due dates for completion of review/modification tasks:**
- VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):**
- VII. Summary of all contacts with local community, public interest groups, or state government:**
- VIII. Changes in relevant personnel:**
- IX. Actual Cost for Operation & Maintenance, if appropriate:**

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

**PRELIMINARY ASSESSMENT/SITE INSPECTION REPORT
AND SWMU ASSESSMENT REPORT**

UNIT NUMBER:

UNIT NAME:

DATE:

REGULATORY STATUS:

LOCATION:

APPROXIMATE DIMENSION:

FUNCTION:

BRIEF HISTORY:

OPERATIONAL STATUS:

DATES OPERATED:

SITE/PROCESS DESCRIPTION:

WASTE DESCRIPTION:

WASTE QUANTITY:

SUMMARY OF ENVIRONMENTAL SAMPLING DATA:

DESCRIPTION OF RELEASE AND MEDIA AFFECTED:

DESCRIPTION OF RELEASE AND MEDIA AFFECTED:

GROUNDWATER:

SURFACE WATER:

SOIL:

ECOLOGY AFFECTED (i.e., endangered/threatened species)

DOCUMENTATION OF NO RELEASE:

IMPACT ON OR BY OTHER SWMU/AOC:

PRG COMPARISON:

RFI NECESSARY:

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

APPENDIX E

Prior Work

**Environmental Restoration Program
Prior Work by Project**

10/16/96

WAG 27 NORTHWEST PLUME SOURCES

Description	Due Date	Submitted	Approved
RI/FS Scoping Document - WAG 27	07/03/96	07/18/96	Serves as precursor to the Data Quality Objectives (DQO) session scheduled for July 29-30, 1996.

ADMINISTRATIVE CONSENT ORDER (ACO)

Description	Due Date	Submitted	Approved
Administrative Consent Order (ACO)			Effective date of 11/23/88.

GROUNDWATER NORTHWEST IRA1

Description	Due Date	Submitted	Approved
D1 Phase I Site Investigation Work Plan	01/22/89	01/20/89	EPA KY 4/10/89 03/30/89 Conditional
D1 Phase I Site Investigation Report	12/21/90	12/20/90	Approved 1991
D1 Phase II Site Investigation Work Plan		07/17/90	EPA KY 12/04/90 12/04/90
D1 Phase II Site Investigation Report	10/28/91	10/25/91	EPA required no further revisions; however, the Final Report would not be approved until a complete schedule for implementation of post-Phase II activities is approved.
D1 Phase II Public Health and Ecological Assessment	12/29/91	12/19/91	Review comments to be addressed in post-Phase II documents submitted in accordance with approved schedules. Draft report not required to be finalized but to support the final documents developed in accordance with the ACO/Site Management Plan.
D1 Phase II Preliminary Alternatives Evaluation	12/29/91	12/19/91	Review comments to be addressed in post-Phase II documents submitted in accordance with approved schedules.
D1 ICM Work Plan - Northwest Plume IRA1	05/22/92	05/21/92	EPA KY 07/26/93 07/26/93
D1 FS/PP - Northwest Plume IRA1	03/08/93	03/03/93	Received EPA concurrence on 04/15/93.

Environmental Restoration Program Prior Work by Project

10/16/96

D1 IROD - Northwest Plume IRA1	05/03/93	04/22/93	Signature Dates: DOE 07/16/93 EPA 07/22/93 KY concurred 08/13/93	
D1 RD Work Plan - Northwest Plume IRA1	05/10/93	05/10/93	EPA 09/01/93	KY 09/01/93
D1 Remedial Design Report - Northwest Plume IRA1	10/30/93	10/27/93	EPA 02/14/94	KY 03/15/94
D1 Remedial Action Work Plan - Northwest Plume IRA1	11/05/93	11/05/93	EPA 03/28/94	KY 03/28/94
D1 Northwest Plume Groundwater Screening Risk Assessment	12/20/93	12/17/93	Comments will be addressed as part of the Risk Assessment Strategy included in the SMP.	
D1 Treatability Study Work Plan (Iron Filings) - Northwest Plume IRA1	08/01/94	07/29/94	EPA 04/19/95	KY
D1 O&M Plan - Northwest Plume IRA1	05/31/94	05/27/94	EPA 03/06/96	KY 12/08/95
D1 Remedial Action Report (Postconstruction Report) - Northwest Plume IRA1	08/06/95	08/05/95	EPA 09/28/95	KY 09/11/95

GROUNDWATER NORTHWEST IRA 2

Description	Due Date	Submitted	Approved	
D1 Focused Feasibility Study - Northwest Plume Source Containment	01/28/94	01/19/94	Agreements made to further delay action on the Northwest Plume	
D1 Proposed Plan - Northwest Plume Source Containment	09/09/94	09/07/94	Received letter on 12/02/94 disapproving the report based on agreements made to delay further action on the Northwest Plume.	
D1 Record of Decision - Northwest Plume IRA-2	04/04/95		On hold based on EPA/KY negotiations.	

GROUNDWATER NORTHWEST FRA

Description	Due Date	Submitted	Approved	
D1 Feasibility Study Work Plan - Dissolved Phase Northwest Plume	04/28/94	04/26/94	EPA 03/14/95 Response	KY
D1 RI Report (Baseline RA) - Dissolved Phase Risk Assessment	08/01/94	07/29/94	On hold based on EPA/KY negotiations	

Environmental Restoration Program Prior Work by Project

10/16/96

GROUNDWATER NORTHEAST IRA

Description	Due Date	Submitted	Approved
D1 ICM Work Plan - Northeast Plume	10/05/93	10/04/93	EPA KY 03/07/94 02/18/94
D1 Field Sampling Plan - Northeast Plume	01/13/94	01/12/94	EPA KY 03/07/94 03/14/94
D1 Preliminary Characterization Summary Report - Northeast Plume	02/07/95	02/06/95	EPA KY 05/01/95 11/06/95
D1 Technical Memorandum for Northeast Plume	02/02/95	01/31/95	EPA KY 03/09/95 04/07/96
D1 Proposed Plan for Northeast Plume	02/02/95	01/31/95	EPA KY 03/09/95 03/10/95
D1 ROD - Northeast Plume	05/24/95	05/23/95	Signature Dates: DOE 06/06/95 EPA 06/15/95 KY concurrence by permit modification 06/26/95
95% Design Package for construction of pipeline from extraction wells to security fence - Northeast Plume	07/26/96	07/22/96	This is in place of the CFC that was due on 07/02/96 that was changed due to changes in design.
90% Design Document for construction of pipelines from extraction wells to security fence - Northeast Plume	06/04/96	06/11/96	Dates and structure have been changed per ROC dated 12/28/95 from DOE to EPA and KY which outlines such agreements
30% Design Document for construction of pipelines from cooling towers to security fence - Northeast Plume	03/12/96	02/27/96	Dates and structure have been changed per ROC dated 12/28/95 from DOE to EPA and KY which outlines such agreements.
Certified for Construction (CFC) for construction of pipelines from cooling towers to security fence - Northeast Plume	06/04/96	06/03/96	Pursuant to letter from DOE to EPA/KY dated 02/27/96.
90% Design Document for construction of pipelines from cooling towers to security fence - Northeast Plume	04/16/96	04/05/96	Dates and structure have been changed per ROC dated 12/28/95 from DOE to EPA and KY which outlines such agreements.
30% Design for extraction well field complete - Northeast Plume	01/04/96	12/28/95	Dates and structure have been changed per ROC dated 12/28/95 from DOE to EPA and KY which outlines such an agreement.

Environmental Restoration Program Prior Work by Project

10/16/96

30% Design Document for construction of
pipelines from extraction wells to security
fence - Northeast Plume

04/30/96 04/22/96

Dates and structure have been
changed per ROC dated 12/28/95 from
DOE to EPA and KY which outlines
such an agreement.

GROUNDWATER GENERAL

Description	Due Date	Submitted	Approved
D1 Water Policy EE/CA	05/19/93	05/17/93	EPA KY 08/13/93 08/25/93
D1 Groundwater Strategy Document	06/30/93	06/28/93	This document will be an appendix to the SMP.
D1 Action Memorandum - Water Policy	10/26/93	10/22/93	EPA KY 09/02/95 09/25/95
D1 Postconstruction Report for Water Policy Implementation	07/30/95	07/27/95	EPA KY 08/25/95 10/31/95

SURFACE WATER

Description	Due Date	Submitted	Approved
D1 ICM Work Plan for Institutional Controls	05/21/92	05/21/92	EPA KY 10/13/92 10/13/92 Conditional
D1 Surface Water Strategy Document	04/30/93	04/27/93	Document will be included as an appendix to the Site Management Plan
D1 O&M Plan for Institutional Controls	08/15/93	10/04/93	EPA KY 11/05/93 11/08/93
D1 ICM Report for Institutional Controls	10/13/93	10/12/93	EPA KY 11/05/93 11/08/93

WAG 22

Description	Due Date	Submitted	Approved
D1 RI Addendum - WAG 22 Burial Grounds	06/23/93	06/22/93	EPA KY 10/25/94 01/17/95
D1 Feasibility Study - SWMUs 2 and 3 of WAG 22 Burial Grounds	10/12/94	10/11/94	EPA KY 04/12/95 05/26/95
D1 Proposed Plan - SWMUs 2 and 3 of WAG 22 Burial Grounds	03/24/95	03/21/95	EPA KY 05/26/95 08/31/95

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D1 Record of Decision - SWMUs 2 and 3 of WAG 22 Burial Grounds	07/30/95	07/28/95	Signature Dates: EPA 08/22/95 DOE 08/16/95 KY concurrence 08/31/95	
D1 Field Sampling Plan - SWMUs 7 and 30 of WAG 22 Burial Grounds	03/31/95	03/29/95	The Field Sampling Plan, combined with the CERCLA ACO Phase I and Phase II Work Plans, constitutes the RI/FS Work Plan (RFI/CMS Work Plan).	
D1 Sampling Plan - SWMUs 2 and 3 of WAG 22 Burial Grounds	09/01/95	08/31/95	EPA	KY 06/17/96
Addendum to D1 Field Sampling Plan - SWMUs 7 and 30 of WAG 22 Burial Grounds. Required in 05/04/95 Data Quality Objectives meeting.	06/02/95	06/02/95	EPA 07/11/95	KY 07/21/95

WAG 23

Description D1 Proposed Plan - WAG 23	Due Date 04/29/96	Submitted 04/15/96	Approved Originally scheduled for 04/29/96 but pushed forward to 04/14/96. Due to some problems with certification, pushed back to original date of 04/29/96.	
D1 RI Addendum - WAG 23 PCB Spill Sites	07/23/93	07/22/93	EPA 01/26/95	KY 02/16/95
D1 Treatability Study Program Plan - WAG 23	03/26/94	03/24/94	EPA 01/12/95	KY
D1 Treatability Study Report - WAG 23	09/29/95	09/27/95	In review (extension requested and approved by EPA and KY on 08/10/95 and 08/08/95, respectively.)	
D1 Feasibility Study Report - WAG 23	01/25/96	01/23/96	EPA 06/10/96	KY 05/09/96

WAG 11

Description D1 RFI Work Plan - WAGs 5 and 11	Due Date 06/14/92	Submitted 06/01/92	Approved Resubmission moved to outyear pursuant to WAG restructuring included in Mod #10 to the RCRA Permit.	
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Environmental Restoration Program Prior Work by Project

10/16/96

WAGS 1 AND 7

Description	Due Date	Submitted	Approved
D1 ICM Work Plan - C-746-K	08/10/92	08/14/92	EPA KY 03/02/93 03/02/93
D1 RFI Work Plan - WAGs 1 and 7	09/12/92	09/11/92	EPA KY 09/28/93 09/28/93
D1 Feasibility Study Work Plan (CMS Work Plan) - WAGs 1 and 7	01/28/95	01/25/95	EPA KY 03/08/95 03/06/95 RI Report submitted 09/11/95
D1 Preliminary Characterization Summary Report and FSP Addendum- WAGs 1 and 7	01/28/95	01/25/95	
D1 RFI Report - WAGs 1 and 7	11/01/95	10/30/95	EPA KY 06/10/96 06/03/96 Also includes the RFI Report for KOW SMWUs 94, 95, and 157.
D1 Feasibility Study Report - WAGs 1 and 7	12/14/95	12/14/95	EPA KY 06/10/96 06/03/96 w/comments
D1 Proposed Plan - WAGs 1 and 7	05/20/96	05/16/96	EPA KY 06/03/96

WAG 3

Description	Due Date	Submitted	Approved
D1 RFI Work Plan - WAGs 2, 3, and 14	04/10/93	04/07/93	Resubmission moved to 11/15/97 pursuant to WAG restructuring in Mod #10 to RCRA Permit.

WAG 13

Description	Due Date	Submitted	Approved
D1 RFI Work Plan - WAG 13	07/09/93	07/07/93	Resubmission moved to outyear pursuant to WAG restructuring in Mod #10 to RCRA Permit.

WAG 17

Description	Due Date	Submitted	Approved
D1 RFI Work Plan - WAG 17	01/30/94	01/28/94	EPA KY 01/12/95 08/02/95

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D1 CMS Work Plan - WAG 17	06/06/94	06/03/94	EPA 03/09/95	KY 01/17/95
Addendum II to WAG 17 RFI Work Plan	06/26/95	06/26/95	EPA 07/12/95	KY 08/02/95
Modification to WAG 17 RFI Work Plan	03/13/95	03/13/95	EPA 04/03/95	KY 04/03/95
Additional information requested in addition to Addendum II to WAG 17 RFI Work Plan	07/21/95	07/21/95	KY 08/02/95	
D1 Action Memorandum for WAG 17, SWMU 124	06/14/96	06/14/96	EPA 07/08/96	KY 06/25/96
D2 Action Memorandum for WAG 17, AOC 124		07/26/96	The removal action will proceed as scheduled with the notice of completion projected for 09/06/96.	

WAG 6 - C-400

Description	Due Date	Submitted	Approved	
D1 RI/FS Work Plan - WAG 6	07/27/94	07/25/94	In review	
D3 RI/FS Work Plan - WAG 6 - C-400	08/30/96	08/28/96		
Industrial Hydrogeology Study (IHS) Report - WAG 6 - C-400	07/13/96	07/12/96	EPA	KY
D1 Industrial Hydrogeology Utilities Survey - WAG 6 - C-400	09/15/95	09/13/95	EPA 11/2/95	KY 11/03/95

WAG 15

Description	Due Date	Submitted	Approved	
D1 SAP for Site Evaluation at WAG 15		05/28/96	EPA	KY 09/09/96

WAG 24

Description	Due Date	Submitted	Approved	
D1 ICM Work Plan - Containment of Scrapyard Sediment Runoff	02/02/93	02/01/93	EPA 07/23/93	KY 07/23/93
D1 ICM Report (Postconstruction) - Scrapyards	08/04/94	08/02/94	EPA 01/30/95	KY

Environmental Restoration Program Prior Work by Project

10/16/96

D1 O&M Plan - Scrapyards	08/04/94	08/02/94	EPA	KY
			01/30/95	

WAG 18

Description	Due Date	Submitted	Approved
D1 ICM Work Plan - North-South Diversion Ditch	03/26/93	03/24/93	EPA KY 03/28/94 03/28/94
D1 Proposed Plan - North-South Diversion Ditch	10/04/93	09/10/93	Approved upon signature of ROD.
Public Notice for Proposed Plan and ICM Work Plan - North-South Diversion Ditch	11/08/93	11/07/93	
Draft Strawman ROD - North-South Diversion Ditch	11/12/93	11/12/93	Signatures DOE 03/15/94 EPA 03/28/94 KY concurred 03/28/94
ICM Report - North-South Diversion Ditch	11/18/95	11/15/95	
O&M Plan - North-South Diversion Ditch	11/18/95	11/15/95	EPA KY 01/30/96 02/14/96 w/comments

MISCELLANEOUS DOCUMENTS

Description	Due Date	Submitted	Approved
D1 Program Site Management Plan	08/23/95	08/22/95	
D2 Program Site Management Plan	07/15/96	07/15/96	
D1 Data Management Plan	03/31/94	03/30/94	In review
D0 Community Relations Master Plan	02/01/94	01/31/94	As agreed by all Parties, a D1 will be developed once the FFA is signed.

APPENDIX F

Primary Document Review Periods

PRIMARY DOCUMENT D1 REVIEW/COMMENT/REVISION PERIODS¹

D1 PRIMARY DOCUMENT	ACTIVITY	PERIOD (Days)
Community Relations Plan	EPA/KY Review	90
	DOE Revise	60
RI/FS Work Plan	EPA/KY Review	90
	DOE Revise	60
RI Report	EPA/KY Review	90
	DOE Revise	60
Baseline Risk Assessment	EPA/KY Review	90
	DOE Revise	60
FS Report	EPA/KY Review	90
	DOE Revise	60
Proposed Plan	EPA/KY Review	45
	DOE Revise	30
Removal Notification	EPA/KY Review	30
	DOE Revise	30
RD Work Plan	EPA/KY Review	30
	DOE Revise	15
Final RD Report	EPA/KY Review	30
	DOE Revise	30
RA Work Plan	EPA/KY Review	30
	DOE Revise	30

¹Pursuant to Section XIV.D. of the FFA, the Draft Primary Review Process does not apply to RODs. Instead, DOE will submit a Draft-Final(D2) ROD to EPA and KNREPC within 30 days of the close of the public comment period. In accordance with Section XX.G.2. of the FFA, this D2 document will be subject to a 30 Day period of review.

D1 PRIMARY DOCUMENT	ACTIVITY	PERIOD (Days)
Data Management Plan	EPA/KY Review	60
	DOE Revise	30
Final Remediation Report	EPA/KY Review	90
	DOE Revise	60
Site Management Plan	EPA/KY Review	30
	DOE Revise	15
Removal Work Plan	EPA/KY Review	30
	DOE Revise	30
Engineering Evaluation/Cost Analysis	EPA/KY Review	30
	DOE Revise	30
Action Memorandum	EPA/KY Review	30
	DOE Revise	30
Site Evaluation Report	EPA/KY Review	30
	DOE Revise	30
Time-Critical Removal Responsiveness Summary	EPA/KY Review	30
	DOE Revise	30

APPENDIX G
Site Management Plan

**SITE MANAGEMENT PLAN
PADUCAH GASEOUS DIFFUSION PLANT
PADUCAH, KENTUCKY**



CLEARED FOR PUBLIC RELEASE

**DOE/OR/07-1207&D3
KY/ER-17&D3**

**SITE MANAGEMENT PLAN
PADUCAH GASEOUS DIFFUSION PLANT
PADUCAH, KENTUCKY**

Date Issued--October 1996

**Prepared for
U.S. Department of Energy
PADUCAH GASEOUS DIFFUSION PLANT
Paducah, Kentucky 42002**

by

**Lockheed Martin Energy Systems, Inc.
under contract DE-AC05-76OR00001**

with contributions by

**Jacobs Engineering Group
U.S. Environmental Protection Agency
Kentucky Cabinet for Environmental Protection
University of Kentucky**

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ACRONYMS

ACO	Administrative Consent Order
ADS	Activity Data Sheet
AIP	Agreement in Principle
ANL	Argonne National Laboratory
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
BRA	Baseline Risk Assessment
BY	Budget Year
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFC	Certified for Construction
CM	Construction Manager
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
CSOU	Comprehensive Site-Wide Operable Unit
CWA	Clean Water Act
D&D	Decontamination and Decommissioning
DNAPL	Dense Nonaqueous Phase Liquid
DOE	U.S. Department of Energy
DQO	Data Quality Objective
Energy Systems	Lockheed Martin Energy Systems, Inc.
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ERBAM	Environmental Restoration Benefit Assessment Matrix
ERD	Environmental Restoration Division
ES&H	Environmental Safety and Health
FFA	Federal Facility Agreement
FS	Feasibility Study
FY	Fiscal Year
GC	Gas Chromatograph
HRS	Hazard Ranking System
HSA	Hollow Stem Auger
HSWA	Hazardous Solid Waste Amendment
IC	Integrating Contractor
IDW	Investigation-Derived Waste

KDFW	Kentucky Department of Fish and Wildlife
KDWM	Kentucky Department of Waste Management
KNREPC	Kentucky Natural Resources and Environmental Protection Cabinet
KOW	Kentucky Ordnance Works
KPDES	Kentucky Pollutant Discharge Elimination System
LNAPL	Light Nonaqueous Phase Liquid
M&O	Management and Operations
MCL	Maximum Contaminant Level
MS	Mass Spectrometer
NAPL	Nonaqueous Phase Liquid
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NFA	No Further Action
NPL	National Priorities List
NREPC	Natural Resources and Environmental Protection Cabinet
O&M	Operations and Maintenance
OMB	Office of Management and Budget
OR	Oak Ridge Field Office
OREIS	Oak Ridge Environmental Information System
ORO	Oak Ridge Operations
ORR	Oak Ridge Reservation
OU	Operable Unit
PA	Preliminary Assessment
PGDP	Paducah Gaseous Diffusion Plant
POC	Point of Compliance
POE	Point of Exposure
PRG	Preliminary Remediation Goal
QA	Quality Assurance
QC	Quality Control
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDC	Remedial Design Contractor
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RGA	Regional Gravel Aquifer
RI	Remedial Investigation
ROD	Record of Decision

SARA	Superfund Amendments and Reauthorization Act of 1986
SI	Site Inspection
SMP	Site Management Plan
S&M	Surveillance and Maintenance
SWMU	Solid Waste Management Units
Tc-99	Technetium-99
TCE	Trichloroethylene/trichloroethene
TSC	Technical Support Contractor
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
UCRS	Upper Continental Recharge System
UF ₆	Uranium Hexafluoride
USEC	United States Enrichment Corporation
UST	Underground Storage Tank
WAG	Waste Area Group
WKWMA	West Kentucky Wildlife Management Area
WMU	Waste Management Unit

EXECUTIVE SUMMARY

The Paducah Gaseous Diffusion Plant (PGDP) is an active uranium enrichment facility owned by the U.S. Department of Energy (DOE), with most of its facilities now leased to the United States Enrichment Corporation (USEC). During past DOE operations, hazardous substances, waste, or constituents were released into the environment and now require investigation and remediation. To address environmental contamination at DOE facilities nationwide, DOE established the Environmental Restoration (ER) Program. The ER mission for PGDP is to:

Protect human health and the environment through effective and timely remediation that is based on cooperative, efficient, and cost-effective approaches consistent with state and federal regulations.

On May 31, 1994, PGDP was placed on the Environmental Protection Agency's (EPA's) National Priorities List (NPL). The NPL lists sites across the country that are designated by EPA as high priority sites for remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). PGDP received a Hazardous Waste Management Permit from the Commonwealth of Kentucky and a Hazardous Solid Waste Amendment (HSWA) Permit from EPA on August 19, 1991. Together, these permits constitute the Resource Conservation and Recovery Act (RCRA) Permit in which corrective action is required.

Section 120 of CERCLA requires federal facilities listed on the NPL to enter into a Federal Facility Agreement (FFA). The purpose of the FFA is to coordinate the CERCLA remedial action (RA) and RCRA corrective action processes into a set of comprehensive requirements for site remediation. The FFA requires DOE to develop and submit a Site Management Plan (SMP) to EPA and the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) by November 15 of each year. The SMP is intended to provide details necessary or useful in implementing the FFA.

In general, the SMP further outlines the following objectives of the FFA:

1. Coordinates RCRA corrective action and CERCLA RA.
2. Establishes a phased remediation approach.
3. Defines remedial priorities to ensure units posing the highest risks are addressed first.
4. Provides the framework for establishing remediation goals based on land use.
5. Outlines remedial investigation (RI) strategies to serve as guidelines for project-specific activities.
6. Establishes enforceable commitments for the current fiscal year (FY), FY+1, FY+2 and the surface water (waste area groups [WAGs] 18 and 25) and groundwater operable units (OUs) (WAG 26).
7. Establishes long-term goals for work activities for FY+3 and beyond.

The SMP is a dynamic document that will be updated as appropriate and in accordance with the FFA. To expedite the annual revisions and regulatory reviews of the SMP, the text of the document will remain consistent as general strategy information and, therefore, not be included in the annual revisions. The appendices will contain project-specific information that will be subject to annual revisions and review. In the event an actual or apparent inconsistency arises between the FFA and the SMP, the provisions of the FFA will govern.

1. SITE DESCRIPTION

1.1 FACILITY BACKGROUND AND DESCRIPTION

PGDP is an active uranium enrichment facility consisting of a diffusion cascade and extensive support facilities. The plant began operating in the early mid-1950s, supplying enriched uranium for both government and commercial nuclear fuel needs. The operation within the fenced area occupies approximately 750 acres within a 3600-acre DOE tract near Paducah, Kentucky.

The generation of enriched uranium, PGDP's primary product, requires extensive support facilities. Enriched uranium is uranium in which the concentration of the fissionable U^{235} has been increased. Natural uranium is mostly U^{238} , with about 0.72 weight-percent U^{235} and 0.005 weight-percent U^{234} . Uranium mills process the ores to produce a concentrated uranium oxide, U_3O_8 , that is commercially converted to UF_6 for enrichment in the gaseous diffusion plant. The enrichment mechanism is based on the fact that a UF_6 molecule containing U^{235} is slightly lighter than a UF_6 molecule containing U^{238} . As the UF_6 molecules move through several miles of tubing in the diffusion plant's cascade system, slightly more U^{235} than U^{238} escapes through the small holes in the tubing. As the process of cascading is repeated, the U^{235} concentration increases. About two-thirds of the U^{235} in the natural ore is extracted during enrichment, so there are two product streams: 1) enriched uranium product, and 2) depleted uranium tails. The majority of the depleted tails are stored on-site in 14-ton steel cylinders.

Facilities are required to store, process, and manage the two uranium components (enriched and depleted). Also, at present, uranium enriched at PGDP is further enriched at another gaseous diffusion plant in Portsmouth, Ohio; accordingly, packaging and transportation facilities are necessary. Most of the uranium from PGDP is ultimately designated for the commercial sector as fuel for nuclear power reactors in the United States and abroad.

Extensive support facilities are required to maintain the diffusion process. These include a steam plant, four electrical switchyards, four sets of cooling towers, a chemical cleaning and decontamination facility, water and wastewater treatment plants, maintenance and laboratory facilities, and one active landfill. Several inactive facilities are also located on the plant site.

On October 24, 1992, the President signed the Energy Policy Act of 1992, Pub. L. 102-486 (the Act) which amended the Atomic Energy Act of 1954, § 2011-2296 (1992, as amended). The Act establishes a new government corporation, USEC, whose charter is to provide uranium enrichment services on a profitable and competitive basis. USEC leased the uranium enrichment production facilities at Paducah beginning July 1, 1993. Other portions of the facility were retained by DOE.

The Act sets out DOE and USEC's obligations for environmental conditions at the plants. The Act requires DOE to be responsible for the decontamination and decommissioning (D&D), response actions, and/or corrective actions for conditions existing before the transition date. "[All liabilities attributable to operation of the uranium enrichment enterprise before the transition (July 1, 1993) shall remain direct liabilities of the Department of Energy]" Pub. L. 102-486 § 1406 (a).

1.2 ENVIRONMENTAL SETTING

The area surrounding PGDP is predominantly rural. Immediately adjacent to PGDP is the West Kentucky Wildlife Management Area (WKWMA), which is used by a considerable number of hunters and fishermen each year. The remaining area is lightly populated, with randomly-located residences and farms. The small communities of Grahamville and Heath are located approximately two miles east of the plant. Metropolis, Illinois is located north of PGDP across the Ohio River.

PGDP is located within the drainage areas of Big Bayou and Little Bayou Creeks, which meet about three miles north of the site and discharge into the Ohio River. Big Bayou Creek, which flows along the western boundary of the plant, is a perennial stream whose drainage extends from approximately two and one-half miles south of the site to the Ohio River. Little Bayou Creek, which originates in the WKWMA, flows north toward the Ohio River along a course that includes parts of the eastern boundary of the plant. During dry weather, much of the flow in both creeks is due to controlled effluent releases from PGDP. These effluents constitute about 85 percent of the normal flow in Big Bayou Creek and 100 percent in Little Bayou Creek.

The regional geology at PGDP is characterized by Quaternary, Tertiary, and Cretaceous sediments overlying Paleozoic bedrock. The most important unit of these geologic systems includes the continental deposits of the Pleistocene/Pliocene series. The continental deposits consist of clays, sands, silts, and gravels. The gravel of the continental deposits is the major aquifer in the area of the site. Accordingly, the unit has been termed as the regional gravel aquifer (RGA). The RGA is the uppermost aquifer at PGDP and serves as a local source of water to residences with private wells surrounding PGDP. Figure 1.1 depicts the plant site and surrounding area.

1.3 SITE CONTAMINATION

During past operations of PGDP, RCRA hazardous wastes, hazardous constituents, and hazardous substances were released into the environment. The source areas where releases originally occurred are often referred to as solid waste management units (SWMUs) and areas of concern (AOCs). In general, SWMUs and AOCs are typically areas such as burial grounds, spill sites, landfills, surface impoundments, and underground storage tanks (USTs). The releases from some source areas have migrated into the surrounding soils, and in some cases, to the underlying groundwater and adjacent surface waters. In July 1988, groundwater samples collected from residential wells north of PGDP led to the discovery of trichloroethene (TCE) and technetium-99 (Tc-99) contamination. These areas now require investigation and remediation.

2. REGULATORY OVERVIEW

The ER Program at PGDP is driven by several environmental laws and regulations. In general, these include the CERCLA; the Clean Water Act (CWA); the National Environmental Policy Act (NEPA); the RCRA (KRS 224); and the Toxic Substances Control Act (TSCA). The specific requirements of these statutes are further defined through site-specific permits, enforcement orders, and compliance agreements. Although all these regulations impact the ER Program to some degree, RCRA and CERCLA are considered the primary regulations that currently drive the majority of investigation and remediation activities at the site.

2.1 RCRA PERMITS

The primary purpose of RCRA is to protect human health and the environment through the proper management of both hazardous and nonhazardous wastes from the generation of the waste to its disposal. RCRA Subtitle D contains the regulatory provisions for the management of nonhazardous solid wastes, while RCRA Subtitle C regulates the management of hazardous wastes. In 1984, RCRA was significantly expanded when Congress signed HSWA into law. HSWA added several new requirements to Subtitle C including land disposal restrictions, provisions for waste minimization and air emissions monitoring, UST maintenance and remediation, and requirements to conduct corrective action for environmental releases at SWMUs.

RCRA requirements for PGDP are contained in two separate but related permits. These include a Hazardous Waste Management Permit, issued and administered by the Commonwealth of Kentucky, and the HSWA Permit, issued and administered by the U.S. EPA. These permits were issued on July 16, 1991, and constitute the RCRA Permits for PGDP. EPA's HSWA Permit is limited to the HSWA provisions of RCRA including corrective action requirements for SWMUs. The Kentucky Hazardous Waste Management Permit contains regulatory provisions for treatment, storage, and disposal (TSD) units permitted under the RCRA Base Program (pre-HSWA). The Commonwealth's Permit also contains corrective action provisions requiring corrective action for SWMUs. On April 26, 1996, at 61 Fed. Reg. 18,504, EPA, pursuant to RCRA Section 3006, gave Kentucky final authorization, effective June 25, 1996, to administer the Corrective Action portion of HSWA, specifically including 42 U.S.C. 6924(u) and (v). The RCRA Permits currently contain a Schedule of Compliance specifying timetables for DOE to conduct a series of RCRA facility investigations (RFIs) for SWMUs.

2.2 CERCLA

The primary purpose of CERCLA is to protect human health and the environment through cleanup of unpermitted releases of hazardous substances at hazardous waste sites. CERCLA regulations applicable to ER activities are commonly referred to as the National Contingency Plan (NCP). The NCP outlines the procedural requirements for responding to releases of hazardous substances.

2.2.1 Administrative Consent Order (ACO)

In July 1988, groundwater samples collected from residential wells north of PGDP indicated TCE and Tc-99 contamination. In November of 1988, the U.S. DOE and EPA entered into an ACO under Sections 104 and 106 of CERCLA. The primary purpose of the ACO was to formalize requirements for determining the nature and extent of off-site contamination and to ensure appropriate actions are taken to mitigate any immediate risks that may be posed to human health and the environment. To date, a series of site investigations and interim actions have been initiated under the ACO.

2.2.2 Federal Facility Agreement (FFA)

On May 31, 1994, PGDP was placed on the NPL. The NPL is a list of sites across the nation that have been designated by EPA as high priority for site remediation under CERCLA. EPA uses the Hazardous Ranking System (HRS) to determine which sites should be included on the NPL. A site is eligible for the NPL if it ranks 28.5 on the HRS; PGDP ranked 56.9. Being placed on the NPL means that DOE must follow the cleanup requirements of CERCLA. Section 120 of CERCLA requires federal facilities listed on the NPL to enter into an Interagency Agreement (also referred to as an FFA) with EPA. The purpose of the FFA is to provide a set of comprehensive requirements for remediation of DOE's PGDP. Because the FFA is intended to serve as the primary framework for site remediation under CERCLA, the Parties of the FFA (DOE, EPA, KNREPC) have agreed to terminate the ACO, once the FFA is signed, since those activities can easily be continued under the FFA process.

RCRA-permitted facilities listed on the NPL are subject to both CERCLA RA and RCRA corrective action authorities. This overlapping authority is most common at federal facilities, such as the case of PGDP. While the CERCLA RA and RCRA Corrective Action Programs may have similar objectives, the procedural requirements under the two statutes may differ to some degree. The FFA contains provisions to coordinate the cleanup process of RCRA and CERCLA into a set of comprehensive requirements for site remediation, thereby eliminating duplication of effort and the inefficiencies that may result from having two separate cleanup programs operating independently at the same site (see Figure 2.1).

2.2.3 Applicable or Relevant and Appropriate Requirements (ARARs)

While RCRA and CERCLA are the primary regulatory drivers for site remediation at PGDP, Section 121 of CERCLA requires RAs to comply with requirements or standards under federal or state environmental laws that are determined to be "applicable or relevant and appropriate" to the hazardous substances or particular circumstances at a site, unless such a requirement is waived by the EPA. The Record of Decision (ROD) will include and identify all ARARs, including those that have been waived. In general, ARARs can be categorized into three basic groups (53 *FR* 51437 12/21/88):

- 1) **Chemical-Specific ARARs** are requirements that set health or risk-based concentration limits or discharge limitations in various environmental media for specific hazardous substances, pollutants, or contaminants. These requirements generally set protective cleanup levels for the chemicals of concern in the designated media, or indicate a safe level of discharge that may be incorporated when considering a specific remedial activity.

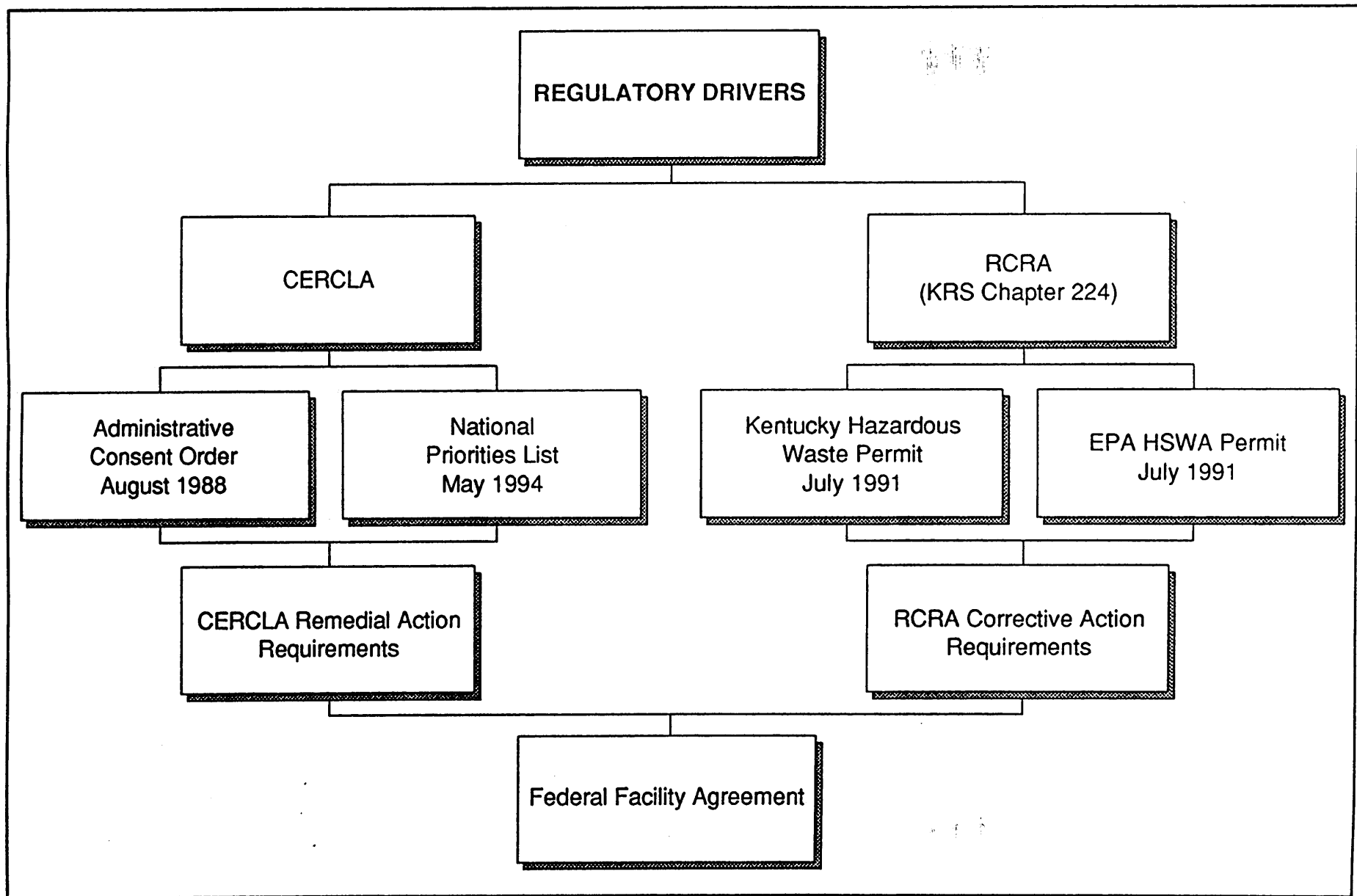


Figure 2.1. Regulatory drivers.

- 2) **Location-Specific ARARs** set restrictions upon the concentration of hazardous substances or the conduct of activities solely because they are in special locations. In determining the use of location-specific ARARs for selection of RAs at CERCLA sites, one must investigate the jurisdictional prerequisites of each of the regulations.
- 3) **Action-Specific ARARs** are performance, design, or other action-specific requirements that set controls or restrictions on particular kinds of activities related to the management of hazardous waste. Selection of a particular RA at a site will invoke appropriate action-specific ARARs that may specify particular performance standards or technologies, as well as specific environmental levels for discharged or residual chemicals.

In the absence of federal- or state-promulgated regulations, there are many criteria, advisories, guidance values, and proposed standards that are not legally binding but may serve as useful guidance for setting protective cleanup levels. These are not potential ARARs but are "to-be-considered" guidance.

3. REMEDIATION STRATEGY

The site remediation strategy for PGDP coordinates RCRA/CERCLA cleanup requirements, defines remedial priorities, provides the framework for establishing remediation goals, defines RI guidelines, and establishes a phased remediation approach.

3.1 RCRA/CERCLA COORDINATION

A primary purpose of the FFA and Site Management Plan (SMP) is to coordinate the cleanup programs of CERCLA and RCRA into a set of comprehensive requirements for site remediation. In general, RCRA requires corrective action of environmental releases of hazardous wastes and constituents originating from SWMUs. In comparison, CERCLA requires RA for releases of CERCLA-hazardous substances, regardless if the release originated from a regulated unit or a SWMU. With a few exceptions (e.g., radionuclides), a release of a CERCLA-hazardous substance would also constitute a release of a RCRA-hazardous waste/constituent from a SWMU and vice versa. The risks from these releases, in most instances, would be indistinguishable, and the facility would be required to pursue cleanup under one of these programs. Therefore, as part of the RCRA/CERCLA coordination strategy, all known environmental releases have been included under the FFA and SMP, regardless if the release is a RCRA- or CERCLA-type release. Appendix I contains a consolidated list of all SWMUs and AOCs.

In addition to the similarities in RCRA and CERCLA cleanup authority, the RCRA corrective action and CERCLA RA processes are generally the same (see Figure 3.1). The FFA and SMP recognizes these processes as equivalent and allows DOE to conduct a single activity to satisfy the requirements of both RCRA and CERCLA. For example, one field investigation conducted under the FFA will evaluate both RCRA-hazardous constituents and CERCLA-hazardous substances and will be documented in a single RI report constituting the requirements from both the RFI and CERCLA RI for a given area. Appendix II of the SMP contains document outlines for each of the Primary Documents depicted in Figure 3.1. The document outlines have been designed to reflect the reporting requirements of both RCRA and CERCLA.

As defined in the FFA, the RCRA Permits will be subject to a series of modifications as site remediation progresses under the FFA. Appendix VIII of the SMP specifies enforceable timetables and deadlines for submitting documents and performing work required by the FFA for FY through FY+2 and the surface water and groundwater OUs. These submittal dates will be negotiated on an annual basis and will be considered enforceable commitments under the FFA. To ensure consistency and effective RCRA/CERCLA coordination, the Schedule of Compliance in the RCRA Permits will be modified annually to reflect the timetables and deadlines negotiated under the FFA.

Also, the RCRA Permits will be modified each time a final remedy is agreed upon under the FFA process. To minimize delays and ensure proper coordination of RCRA and CERCLA, the Proposed Plan developed under the FFA will also serve as the Draft Permit Modification (Statement of Basis) and will be subject to a common public comment period in accordance with the public participation requirements for both RCRA and CERCLA (see Figure 3.2). With regard to interim actions selected under the FFA, the Parties have the option to initiate a permit modification dependant on the scope of the subject action and public interests.

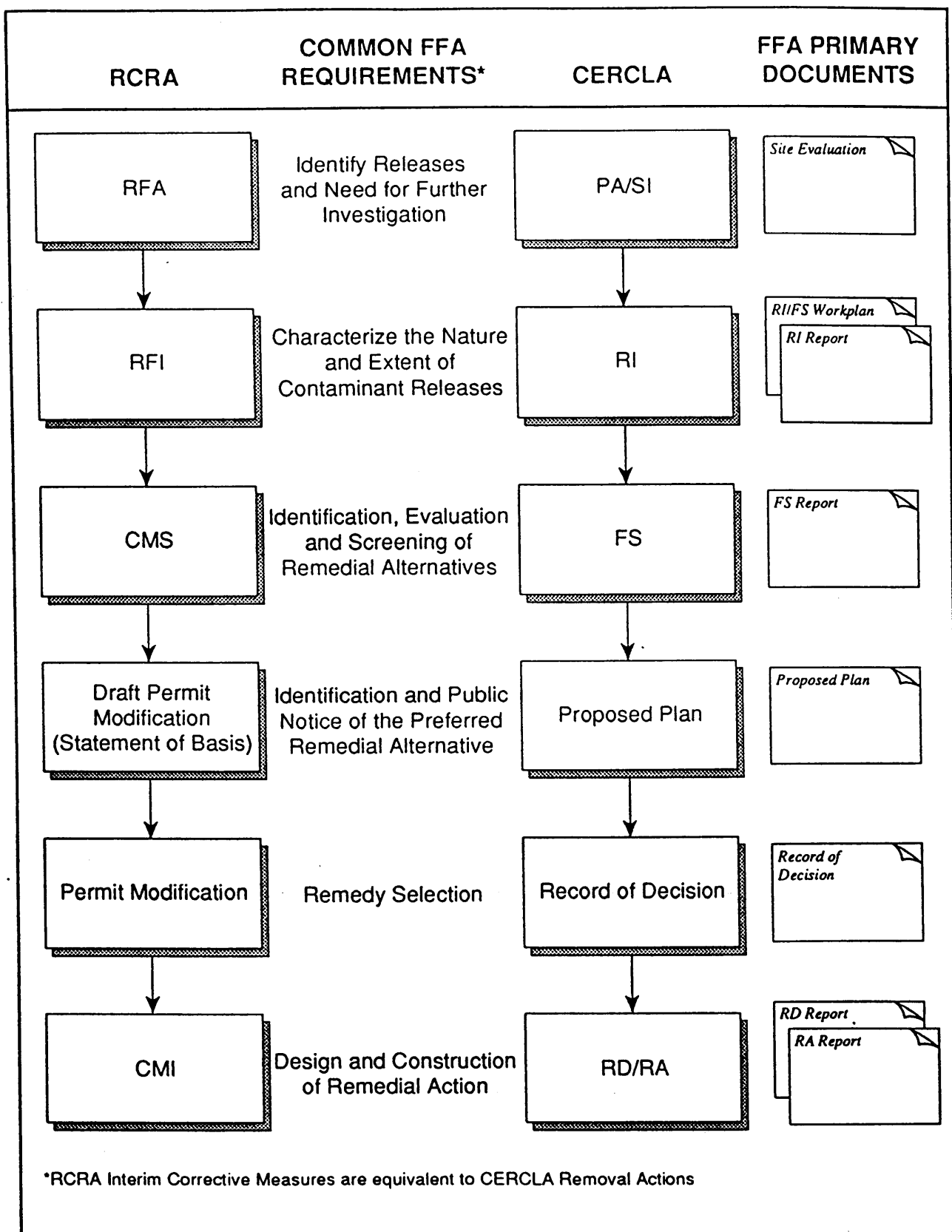


Figure 3.1. Comparison of the RCRA and CERCLA processes.

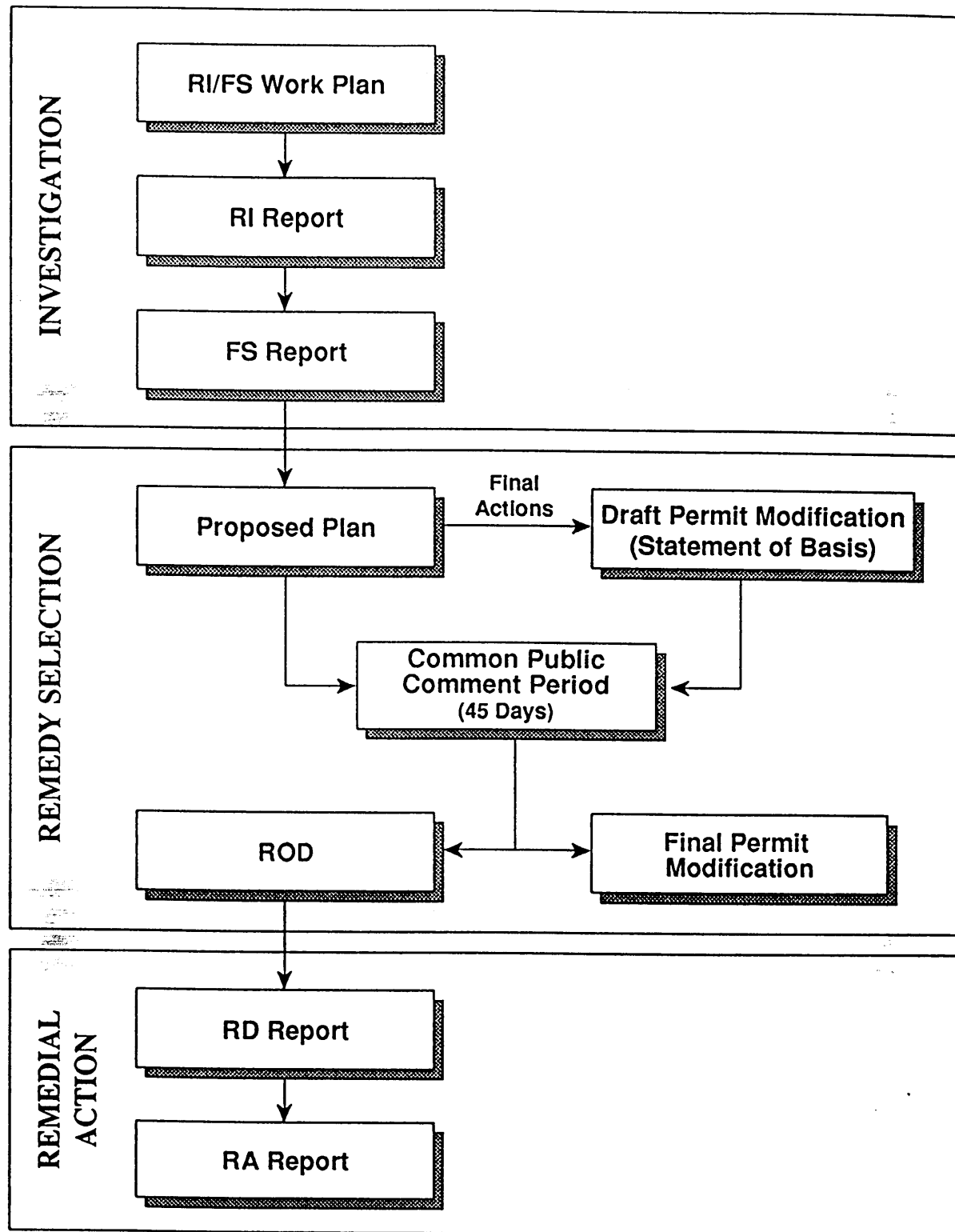


Figure 3.2. Document flow process for RCRA/CERCLA coordination at PGDP.

3.2 REGULATORY STATUS OF SWMUs/AOCs

Appendix III identifies the regulatory status for each SWMU/AOC at the site, including SWMUs/AOCs that are subject to an RI/Feasibility Study (FS), SWMUs/AOCs that have been designated for no further action, and SWMUs/AOCs that are regulated under the Kentucky Hazardous Waste Permit as a permitted TSD unit. The permitted TSD units will be subject to RCRA closure requirements rather than the RI/FS process. Other operating units identified as SWMUs will be scheduled for an RI/FS when the unit ceases operation. Accordingly, the SWMUs/AOCs associated with a building structure will be scheduled for an RI/FS during D&D activities.

3.3 WASTE AREA GROUPS (WAGs/Potential OUs)

Complex sites with multiple environmental releases may choose to divide the site into smaller areas and conduct location-specific RI/FSs. These individual study areas (often referred to as WAGs/Potential OUs) typically contain a limited number of SWMUs/AOCs grouped together based on certain criteria (reassignment of SWMUs/AOCs to other WAGs/Potential OUs may occur as a result of new investigations or developments in technology).

- Common Remedial Technologies
- Common Geographic Locations
- Common Release Mechanisms
- Common Media Type
- Operating Units
- Common Contaminant Sites
- Common Operational Processes
- Common Surface Water Drainage
- Hydraulically-Connected Areas
- Suspected Sources of Off-site Contamination

Appendix IV contains a complete list of the WAGs/Potential OUs that are currently subject to a RI/FS. Also included are individual WAG maps.

3.4 REMEDIAL PRIORITIES

PGDP currently contains numerous WAGs that are subject to the RA process. The SMP establishes work priorities based on factors specified in the FFA. These priorities, which are updated as required are depicted in Figure 3.3. These priorities reflect broad categories of site contamination that will require remediation. Accordingly, these categories have been prioritized based on the overall risks they present to human health and the environment. As depicted in Figure 3.3, the WAGs/Potential OUs were then evaluated and assigned to each category. The available resources are then focused on the higher priority WAGs/Potential OUs. As work for the higher priority WAGs/Potential OUs is completed or when additional resources become available, the lower priority WAGs/Potential OUs will be addressed. Site prioritization will be a joint effort between all Parties with input from the Commonwealth of Kentucky and EPA.

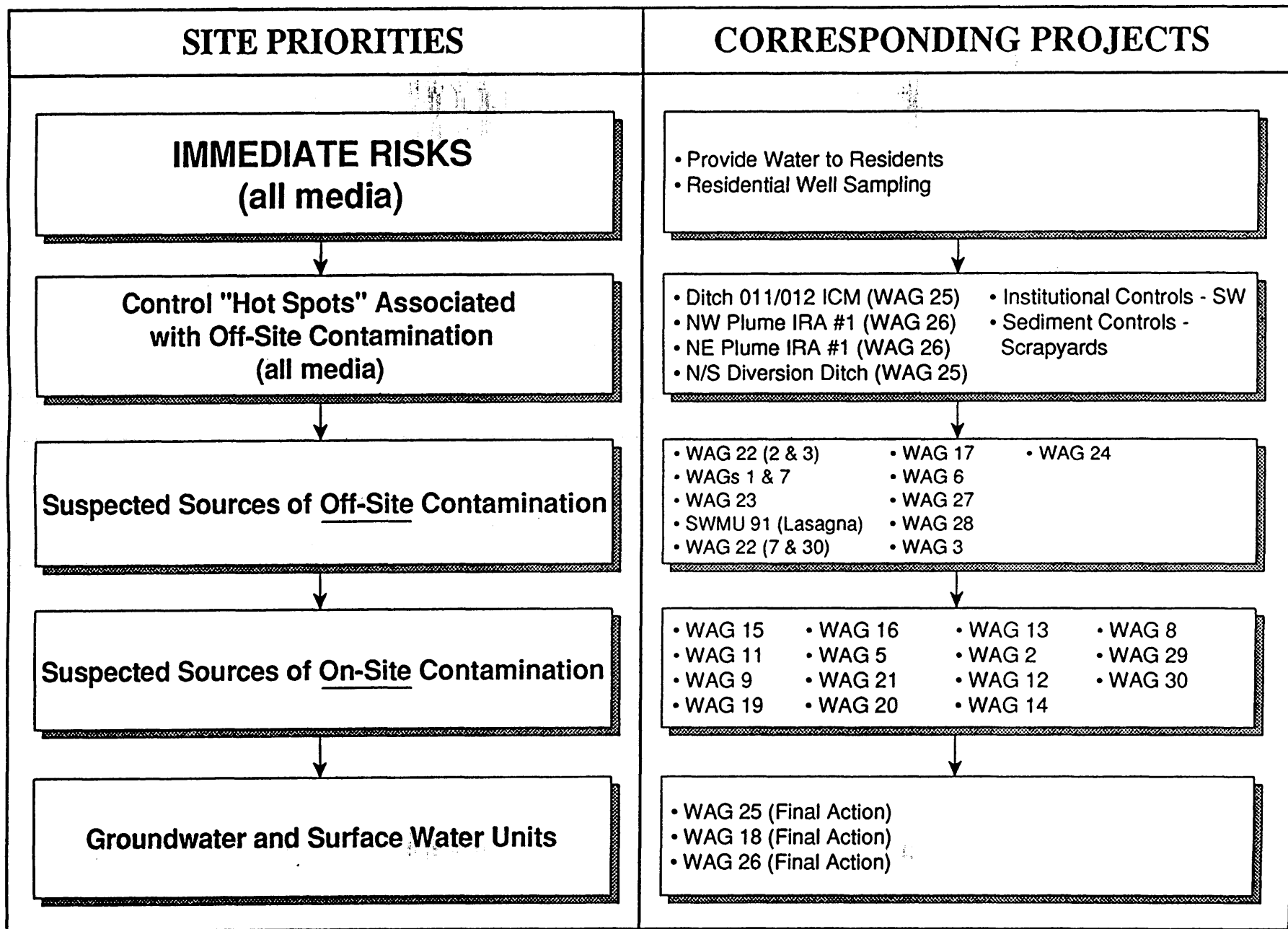


Figure 3.3. Site priorities and corresponding projects.

3.5 OPERABLE UNITS (OUs)

Once a WAG/Potential OU is prioritized and the corresponding RI/FS identifies a specific problem warranting action, a remedy is selected and implemented. The selection and implementation of remedial and removal actions, which are documented in the RODs and Action Memorandums, are referred to as OUs. OUs may address geographic portions of a site, specific site problems, or initial phases of an action; or they may consist of sets of actions performed over time. During the clean-up process, the Parties will consider the need for removal actions and implement them as appropriate and in accordance with the FFA. Appendix V contains the list of OUs that have been identified to date.

3.6 RISK ASSESSMENTS

A primary objective of the FFA is to implement remedies that reduce, control, or eliminate risks to human health and the environment. Certain data will be collected during the RI/FS Phase to support the following risk-related decisions:

- 1) Whether risks warrant further action;
- 2) Levels of constituents that can remain on-site and still be adequately protective of human health and the environment; and
- 3) Comparison of risk reduction benefits associated with various remedial alternatives.

To support these decisions, various types of risk evaluations will be conducted during the cleanup process. These include screening risk assessments (SRAs) which are a form of focused risk assessment which is used to streamline identification and implementation of interim actions; baseline risk assessments (BRAs) for source units; and comprehensive site-wide BRAs.

3.6.1 Screening Risk Assessments (SRAs)

Timely identification and mitigation of constituent releases to environmental media and exposure of humans to hazardous constituents are important considerations in the protection of human health and the environment. To accelerate the identification and remediation of sites posing risk to human health, Screening Risk Assessments (SRAs) will be generated for all source units to determine if any further investigation is necessary and whether interim measures are appropriate for a particular source or media (e.g., groundwater, surface water). SRAs characterize risks through a simple comparison between site-specific chemical concentrations and accepted preliminary remediation goals (PRGs) or ARARs. Preliminary remediation goals used in this comparison will be for residential-use and industrial-use scenarios calculated based on site-specific assumptions using methods similar to those in the Kentucky Risk Assessment Guidance. The PRG will be based on levels protective of direct contact and groundwater ingestion. This assessment will include risk characterization information only. All data evaluation, exposure assessment, and toxicity information will be included by reference only.

The ecological portion of the SRA will involve a description of the location of the units being investigated within each unit's watershed, a comparison of chemical concentrations to accepted ecological benchmark values, and an identification of potential ecological endpoints including sensitive areas and species that might be affected. In this assessment, all supporting information will be included by reference. Remedial goal options will not be presented in this evaluation since an exposure

assessment will not be included in the SRA, and risk to ecological endpoints will not be completely characterized.

3.6.2 Source Unit Baseline Risk Assessments

A baseline risk assessment will be conducted for each source unit to support final action decisions. If the source unit is a suspected source of contamination in the RGA or Big/Little Bayou Creeks, the BRA for a final action decision may be addressed as part of a CSOU evaluation conducted as part of WAG 26 (i.e., groundwater) or WAGs 18 and 25 (i.e., surface water). The human health BRA will include all parts of a risk assessment outlined in "Risk Assessment Guidance for Superfund, Volume I, Part A," including an evaluation of data, an exposure assessment, a toxicity assessment, a characterization of risk, an uncertainty analysis, and a presentation of remedial goal options. This assessment will be a "stand alone" document that will include, either by reference or exhibit, all information supporting the selection of site-specific parameters used in the assessment.

The ecological BRA will include all parts of a risk assessment outlined in "Risk Assessment Guidance for Superfund, Volume II," including an evaluation of data, a definition of the problem to be addressed, an exposure assessment, a toxicity assessment, a characterization of risk, an uncertainty analysis, and a presentation of remedial goal options. This assessment will be a "stand alone" document that will include, either by reference or exhibit, all information supporting the selection of site-specific parameters used in the assessment.

3.6.3 CSOU Baseline Risk Assessments

It is not uncommon for complex sites with multiple source units to have areas of comingled contamination. Such areas typically occur when multiple sources are releasing contamination to a common media. These areas of contamination that "collect" releases from multiple sources are commonly referred to as integrator units (e.g., groundwater). Because integrator units typically encompass large geographic areas that collect releases from multiple source units, final actions for integrator units are deferred until releases from the contributing source units are mitigated. However, because integrator units serve as migration pathways to potential receptors, interim actions early in the process may be necessary to ensure adequate protection to human health and the environment while source units are being addressed.

Under the FFA, final action decisions for integrator units will be addressed as part of CSOUs. These BRAs will evaluate the impacts of any cumulative risks being contributed to the integrator units by sources. The BRA for the CSOU will include a human health risk assessment conducted in conjunction with the groundwater integrator unit (i.e., WAG 26) and an ecological risk assessment and human health risk assessment conducted in conjunction with the surface water integrator unit (i.e., WAGs 18 and 25). It will incorporate, by reference, any relevant source unit information that was considered during the assessment. Figure 3.4 depicts the various risk assessments and their relationship to the overall process.

3.7 POINTS OF COMPLIANCE (POCs)

Risk-based clean-up standards will be established for each contaminated media (e.g., soils, groundwater). The process will involve the use of various exposure assumptions to develop clean-up standards protective of human health and the environment. When establishing such standards for groundwater, a point is typically designated downgradient of a source as the location where a potential

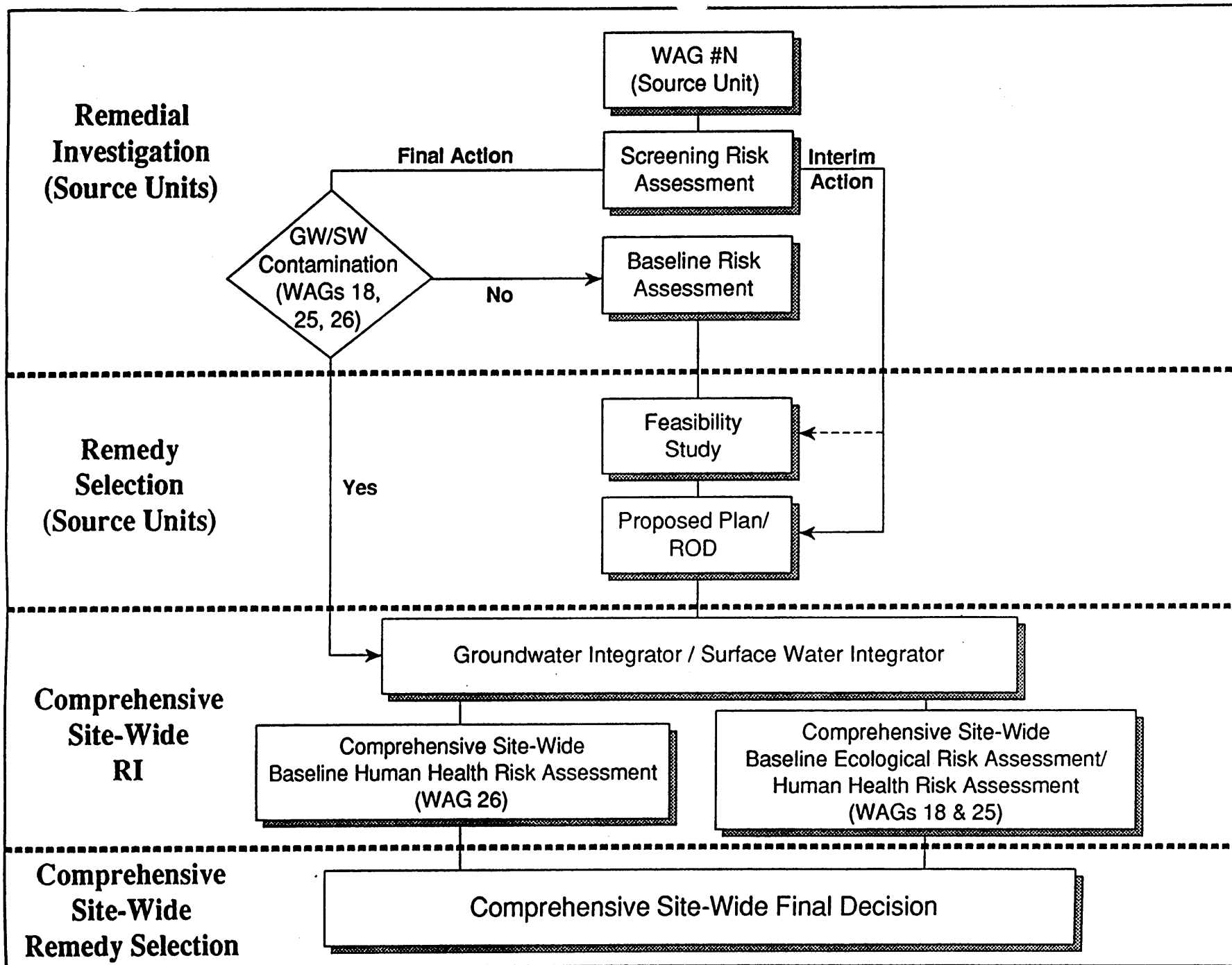


Figure 3.4. Risk assessment strategy.

receptor is assumed to come in contact with the contaminated groundwater. RCRA regulations contained in Section 6 of 401 KAR 34:060 and 40 CFR 264.95(a) define a POC as a vertical plane located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated unit.

These regulations also provide the option for establishing an alternate POC when the facility contains more than one regulated unit. In such cases, the boundary of the waste management area can be expanded to encompass multiple units, thereby allowing a common POC to be established that includes a larger area. It should be noted that these specific regulations apply only to RCRA "regulated units," (C-404 Landfill) and are not applicable to nonregulated SWMUs. However, because of the geographic proximity of certain sources at PGDP, some of the same concepts may be relevant to remediation of nonregulated SWMUs. Therefore, POC will be established on a case-by-case basis and may involve grouping some SWMUs together when conditions warrant.

DOE is proposing the POC for surface water as the location where permitted releases discharge from the Kentucky Pollutant Discharge Elimination System (KPDES) outfall ditches into Big and Little Bayou Creeks.

In cases where the likelihood of exposure is minimal or where certain types of contamination (e.g., dense nonaqueous phase liquid [DNAPL]) cannot be effectively remediated due to technology limitations, the regulations contain provisions allowing higher concentrations of contamination to remain in place. This process is typically referred to as an alternate concentration level (ACL) or technical impracticability waiver. Such requests must demonstrate protection to human health and the environment and be approved by EPA and the state of Kentucky.

3.7.1 Alternate Concentration Levels (ACLs)

As discussed in Section 3.6.4, the POC, which is typically established at the unit boundary, is assumed to be the downgradient point where a potential receptor comes in contact with contaminated groundwater. The Point of Exposure (POE) is a point at which a receptor is assumed to be potentially exposed to groundwater contamination. Contaminant levels at POE must be protective of human health and the environment. In situations where there are no Alternate Concentration Levels (ACLs) considered, the POC will be equal to the POE. The POE can serve as a basis for developing cleanup standards for the groundwater when the POE is downgradient from the POC. Current regulations under both RCRA and CERCLA provide for moving the POE downgradient from the POC (unit boundary). This process is typically accomplished through an ACL petition or associated with a ROD. The petition or ROD must be approved by EPA and Kentucky and demonstrate that the proposed POE would be protective of human health and the environment. Section 121(d)(2)(B)(ii) of CERCLA provides flexibility for establishing a POE downgradient of the DOE property boundary if:

- 1) there are known and projected points of entry of such groundwater into surface water;
- 2) no significant increase of constituents from groundwater to surface water; and
- 3) the RA includes enforceable measures that will preclude human exposure to contaminated groundwater at any point between the facility boundary and all known and projected points of entry of such groundwater into surface water.

Establishing an alternate beyond the unit boundary would result in significant cost reductions for site remediation. However, DOE must demonstrate that the ACL is protective of human health and the

environment. It should be noted that DOE does not use any groundwater under PGDP for drinking purposes or plant operations. Additionally, local residents located downgradient of DOE property are currently being provided municipal water and do not use groundwater as a drinking water source.

3.7.2 Technical Impracticability (TI)

In some cases, certain types of contamination cannot be effectively remediated to acceptable levels regardless of where the POE has been established. At PGDP, TCE which is a DNAPL has been released to the environment and migrated downward to the groundwater forming high concentration pools, thereby serving as long-term sources of groundwater contamination. EPA guidance (OSWER Directive 9234.2-25) published October 4, 1993, discusses the technical impracticability associated with DNAPL remediation. In such cases, 40 CFR 300.430(f)(1)(ii)(C)(3) contains provisions for obtaining ARAR waivers based on technical impracticability. TI waivers may also be applicable to other contaminants, for example, Tc-99. These waivers are typically documented in a ROD or other formal agreements.

In such cases, TI zones for DNAPL contamination would be established exempting DOE from cleanup standards for that particular location. However, since the TI waiver is based on current remedial limitations, new technology developments would be monitored closely for future use. The applicability of TI waivers at PGDP will be evaluated upon discovery of such zones and will be considered during future remedial decisions on a case-by-case basis.

3.8 LAND USE

The current and anticipated future use of selected property at PGDP will have a significant impact on the cleanup standards, types of RAs, and total costs for site remediation. For example, remediation for industrial areas may differ significantly from actions taken for residential areas. Therefore, the proper development of land use assumptions are critical to implementing an efficient, cost-effective program protective of human health and the environment.

Recognizing the important role of land use in the RA process, the Secretary of Energy directed DOE site managers nationwide to identify stakeholder-preferred alternatives for land use at each DOE site. In accordance with this directive, DOE conducted a limited land use study for PGDP and submitted a recommendation to DOE Headquarters on December 30, 1995. As part of the PGDP evaluation, several factors were considered including 1) existing lease commitments, 2) the nature of site contamination currently present at the facility, and 3) stakeholder input.

Existing lease agreements will have a major impact on future land use decisions. PGDP, which is an active uranium enrichment facility, was originally operated by DOE and its previous agencies, the Atomic Energy Commission and the Energy Research and Development Administration. However, on October 24, 1992, the President signed the Energy Policy Act of 1992, Pub. L. 102-486 (the Act) which amended the Atomic Energy Act of 1954, § 2011-2296 (1992, as amended). The Act established a new government corporation, USEC, whose charter is to provide uranium enrichment services on a profitable and competitive basis. Pursuant to the Act, DOE and USEC entered into a lease agreement that leases the production facilities to USEC for uranium enrichment, while DOE retains responsibility for ER and waste management activities associated with conditions existing before July 1, 1993. The Act also reserved to DOE responsibility for decontamination and decommissioning of the leased portion of the plant after cessation of the uranium enrichment process.

Lease agreements are also in place with the Kentucky Department of Fish and Wildlife (KDFW) to use certain DOE properties for the WKWMA. Most DOE property outside the 748-acre fenced security area is leased to KDFW as part of a wildlife management area adjacent to property owned by KDFW. KDFW has indicated that it supports the current land use arrangement at the site; however, if DOE ever decides to sell the property that KDFW currently leases, they would like the first opportunity to acquire the property before it is offered to another entity. However, the current lease agreement with USEC gives the Corporation the first right to obtain any real property associated with PGDP which is not part of the existing lease agreement.

Site contamination is another important factor that must be considered in such a determination. The primary contaminants of concern at PGDP include radionuclides, organic solvents, and PCBs. The extent to which DOE can remediate these contaminants will have a large influence on future use of DOE property. In some cases, TCE, which is a DNAPL, has migrated downward to the groundwater and formed high concentration pools, thereby serving as long-term sources of groundwater contamination.

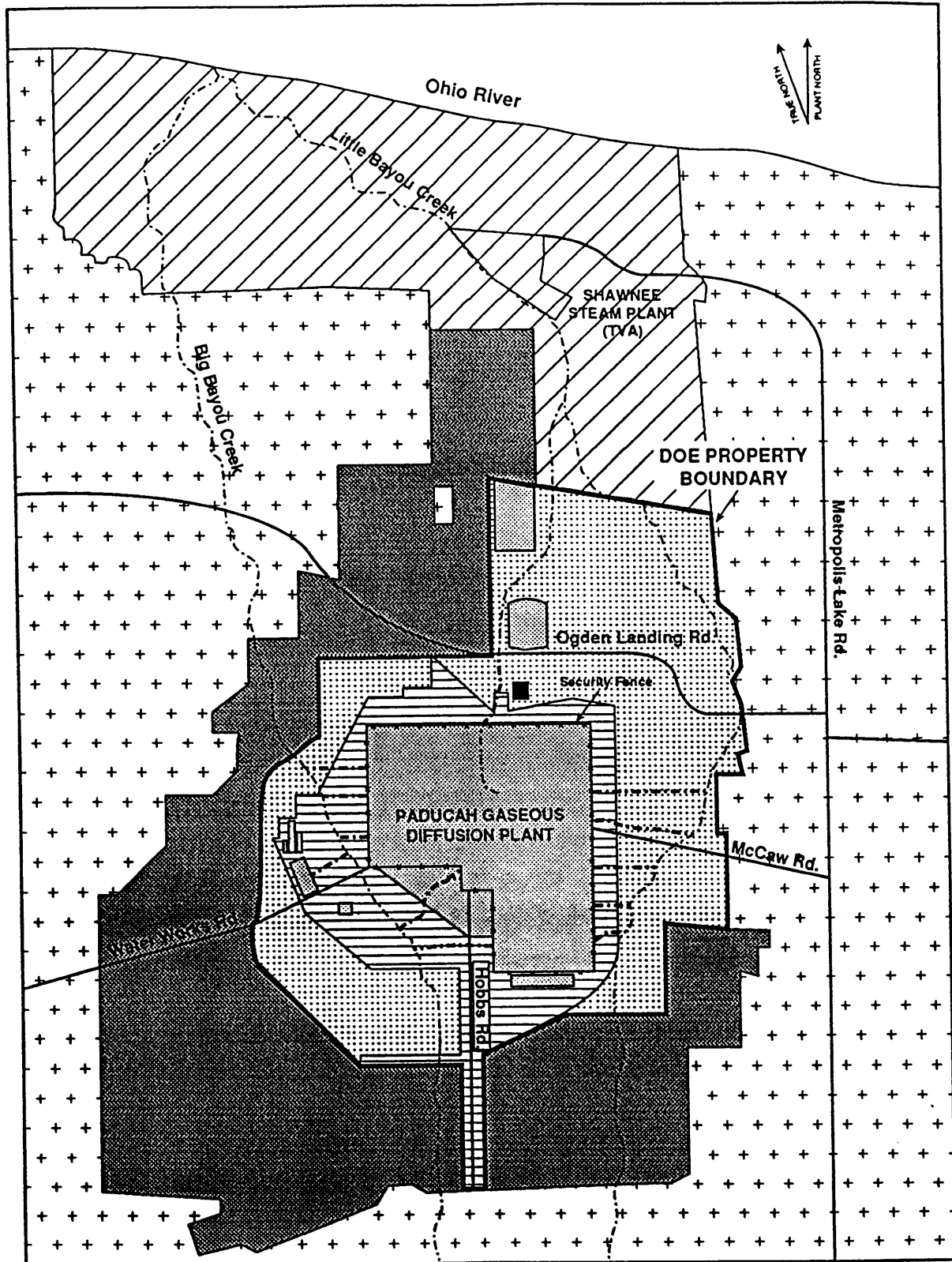
In addition to existing lease agreements and site contamination, input from both internal and external stakeholders has been considered. Twenty-two internal stakeholders attended a workshop conducted April 28, 1995, in Oak Ridge, Tennessee. Participants included representatives of DOE and contractors from the Portsmouth, Ohio, Paducah, and Oak Ridge facilities. The workshop was held to identify general types of alternative missions deemed by the group as "most likely" for further development or consideration should the Department receive notification that USEC intends to terminate its lease agreement at one or both of the gaseous diffusion plants in Portsmouth and Paducah, Kentucky.

With regard to external stakeholders, DOE began preliminary discussions with stakeholders on future land use during a public workshop at Paducah on June 30, 1994. Subsequently, future land use was presented and discussed at public workshops in Paducah on December 1, 1994, January 26, 1995, and September 26, 1995. In addition, the subject has been discussed at various meetings with the PGDP Neighborhood Council, the PGDP Environmental Advisory Committee, city and county officials, and economic development interests. In general, the majority of the stakeholders supported a continued industrial/commercial presence at the site that would preserve existing jobs and continue to contribute to the regional economy. No stakeholders recommended converting DOE property to residential use.

While DOE has obtained preliminary input from various stakeholders, PGDP is currently in the process of establishing a Site-Specific Advisory Board (SSAB) to review issues and provide input on environmental matters at PGDP. Land use will also be discussed with the SSAB once it is functional.

Based on all of the above factors, DOE considers the current land use of mixed industrial/recreational as the most likely future use scenario for the site. Should additional information become available (e.g., stakeholder input) suggesting that an alternative land use is more appropriate, the land use assumptions generated from this study will be reviewed and revised as appropriate.

As depicted in Figure 3.5, the land use designations have been categorized as 1) on-site, secured industrial; 2) on-site, unsecured industrial; 3) on-site recreational; 4) off-site recreational; 5) off-site residential; and 6) off-site industrial. Cleanup standards for a particular source will depend on which land use scenario it is located. For example, cleanup standards will typically be much lower for residential areas than property used for industrial purposes. While all major scenarios (i.e., industrial,



NOT TO SCALE

- | | | |
|--|---|--|
| Off-Site Industrial (Shawnee Steam Plant, TVA) | On-Site Secured Industrial Owned by DOE | On-Site Recreational Owned by DOE Leased by KDWR |
| Off-Site Recreational Owned by KDWR | Off-Site Rural Residential | On-Site Unsecured Industrial Owned by DOE |
| | Private Cemetery | |

Figure 3.5. Land use.

residential, recreational) will be evaluated under the BRA for the individual WAGs/Potential OUs, the designated land uses contained in Figure 3.5 will be used to make a risk management decision on which scenario is appropriate to include in the remedy selection process.

3.9 REMEDIAL ACTION OBJECTIVES

The site priorities as depicted in Figure 3.3 are to mitigate imminent threats, mitigate hot spots as they are discovered, and address source units followed by final actions for groundwater and surface water. Actions taken to date have primarily focused on imminent threats and hot spots associated with off-site contamination with minimal emphasis on the contributing sources. Remediation of sources prevents ongoing releases to groundwater and surface water, thereby allowing cleanup of those media to be based on risk and cost-benefit analyses and technically feasible approaches. With existing actions underway to address imminent risks and hot spots associated with off-site contamination (discussed in more detail in Appendix VII), DOE is in the process of shifting program focus to on-site sources.

Sources are surface or near surface causes of groundwater, surface water, soil, sediment, or air contamination. Examples include buried solid wastes, sludges, or drums typical of landfills and burial areas, leaking lines and equipment, leach fields, leaking sumps, storage tanks, or lagoons (i.e., SWMU/AOC). This original source material is known as the primary source. Recently, DOE, EPA, and the Kentucky Division of Waste Management (KDWM) concluded that nonaqueous phase liquids (NAPLs) present in the subsurface also constitute sources and are referred to as secondary sources. As illustrated in Figure 3.6, the source zone defines the extent of both the primary and secondary sources at a site. TCE, the most common NAPL at PGDP, often exists as a secondary source in the subsurface and slowly dissolves into groundwater, representing a long-term contaminant source. Since source zones include the areal extent of any redistributed NAPLs in the subsurface, source zones are typically larger than conventional boundaries associated with a SWMU. Releases are original source material distributed along a migration pathway. The most common transport mechanisms for releases are flowing surface water and groundwater. Therefore, source investigations may involve multimedia characterization.

As depicted in Figure 3.7, the primary objectives of source zone characterizations are to collect data to:

- * support final actions at source zones,
- * support interim actions at hot spots in groundwater and surface water, and
- * complete the RIs for the groundwater and surface water units (e.g., determine contaminant concentrations from the source to ground water, surface water, and potentially air).

It is not uncommon for complex sites with multiple source units to have areas of comingled contamination. Such areas typically occur when multiple sources are releasing contamination to a common media. *Media that receive contaminants* from multiple sources are commonly referred to as integrator units (e.g., groundwater). Because integrator units typically encompass large geographic areas that collect releases from multiple source units, final actions for integrator units are deferred until releases from the contributing source units are mitigated. However, because integrator units serve as migration pathways to potential receptors, interim actions early in the process may be necessary to ensure adequate protection to human health and the environment while source units are being addressed.

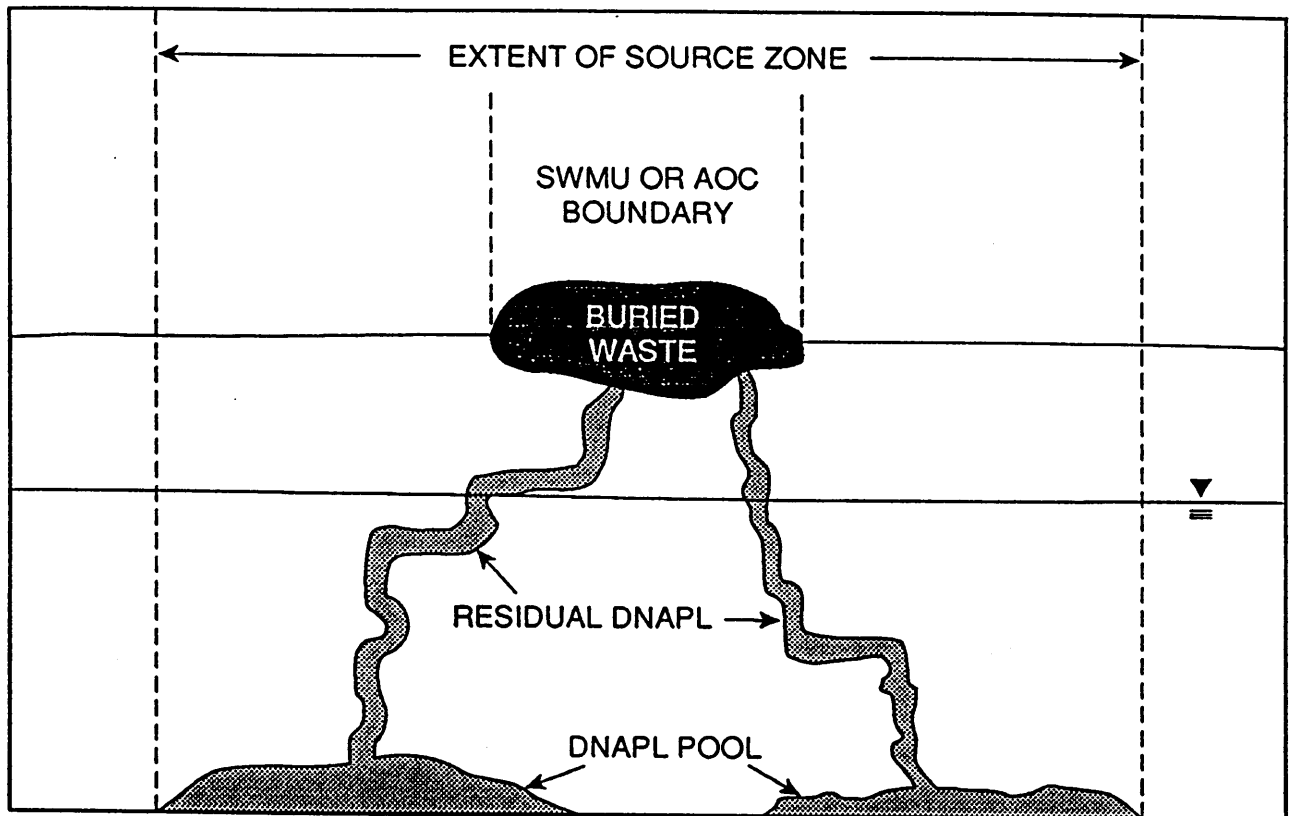


Figure 3.6. Contrast between a typical SWMU boundary and the boundaries of a source zone. Source zones contain any original material plus redistributed NAPL (Note: conceptual model).

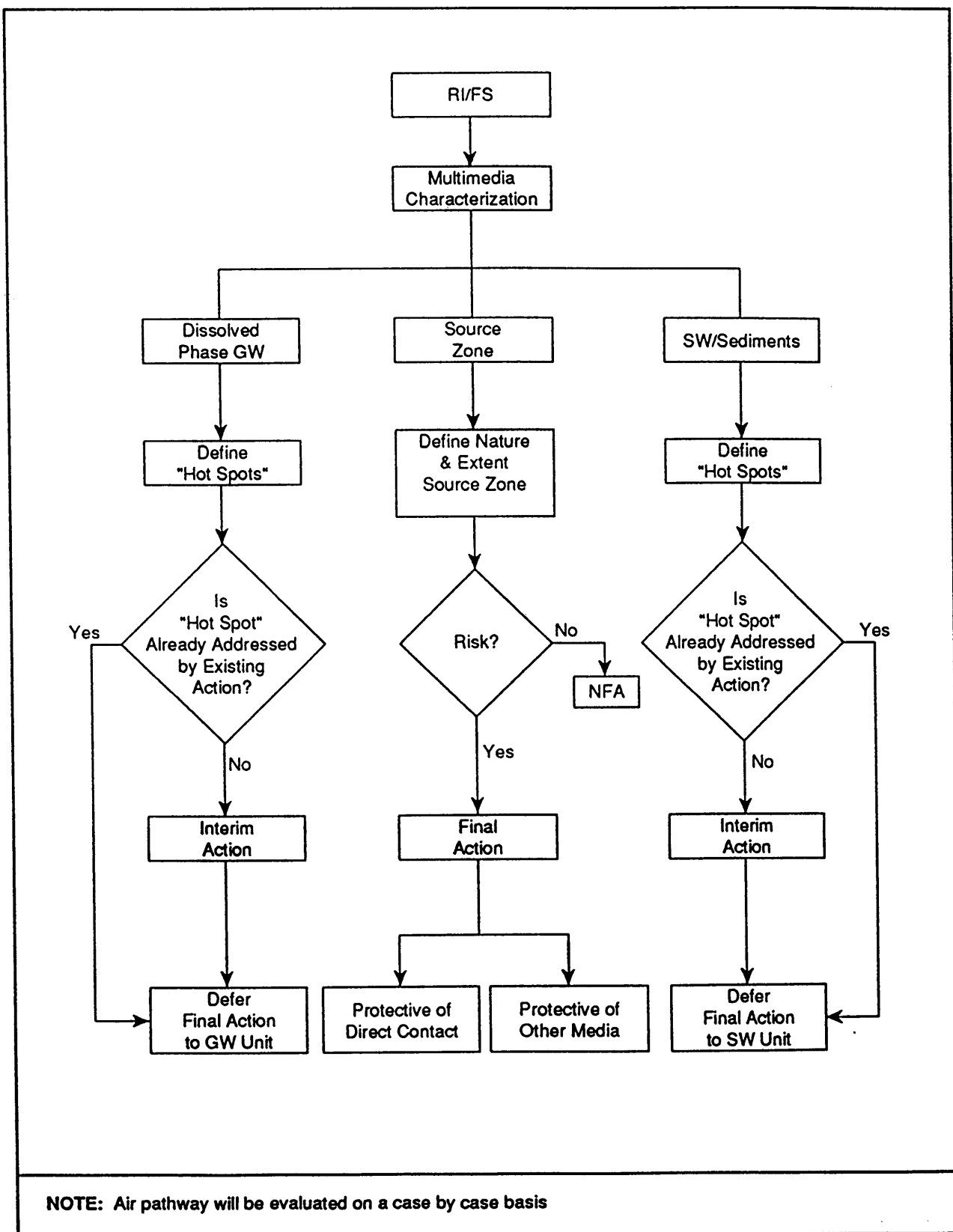


Figure 3.7. Source unit investigations.

Therefore, interim actions for integrator units addressing imminent risks and hot spots will be considered during the source unit investigations. Groundwater and surface water data collected during the individual source unit investigations will ultimately be combined to complete the RI data needs for the surface water and groundwater OUs.

A detailed description for conducting source unit investigations is included in Appendix VI.

4. PROGRAM MANAGEMENT

Successful implementation of the SMP and the remediation strategy will require a program management structure that provides for essential planning, accurate scheduling and budgeting, effective communication, and proper execution of each phase of the remediation process. To accomplish these tasks, detailed planning and coordination with multiple organizations will be required.

4.1 ER PROGRAM PARTICIPANTS

The program roles and responsibilities for the primary participants in the ER Program are detailed in DOE/ORO 931, *Management Plan for the Oak Ridge Operations Environmental Restoration Program*, issued February 1991. The roles of each of these participants are summarized below:

- **DOE-Headquarters Environmental Management (EM)** is responsible to the Secretary of Energy for accomplishing the DOE ER Program nationally.
- The **DOE-ORO Assistant Manager for ER and Waste Management** is responsible to the manager of DOE-ORO for accomplishing the ER Program at DOE-ORO-managed installations including PGDP. Within the DOE-ORO framework, the PGDP DOE Site Manager has the responsibility for actual execution of the work at the Paducah Site.
- **Lockheed Martin Energy Systems, Inc. (Energy Systems)** is the current Maintenance and Operations (M&O) Contractor at five DOE-ORO installations. Accordingly, Energy Systems is directly responsible for the RI, has oversight responsibility for all other work, participates on the sites that it manages, and is assigned the role of integrating contractor for this work through the Environmental Restoration Division at PGDP.
- **Jacobs Engineering Group, Inc.** is the Technical Support Contractor to DOE-ORO for ER work at PGDP and is responsible for development of ER Program proposed plans, FSs, and RODs.
- **Foster Wheeler Environmental Corporation** is the Remedial Design Subcontractor to LMES and is the principal Architect-Engineer for the design associated with remediation of designated sites at PGDP.
- **MK-Ferguson of Oak Ridge** is the Construction Manager (CM) Subcontractor to LMES for construction services at PGDP. For ER work, the CM contractor solicits bids for awards and manages fixed-price and fixed-unit-price subcontracts for RA activities and projects.

Figure 4.1 illustrates the various roles and responsibilities of the ER Program participants.

4.2 PROGRAM SCHEDULES

Remediation of PGDP will involve implementation of multiple projects (i.e., WAGs, OUs). Accordingly, each WAG/Potential OU will be prioritized and scheduled for the purpose of undergoing

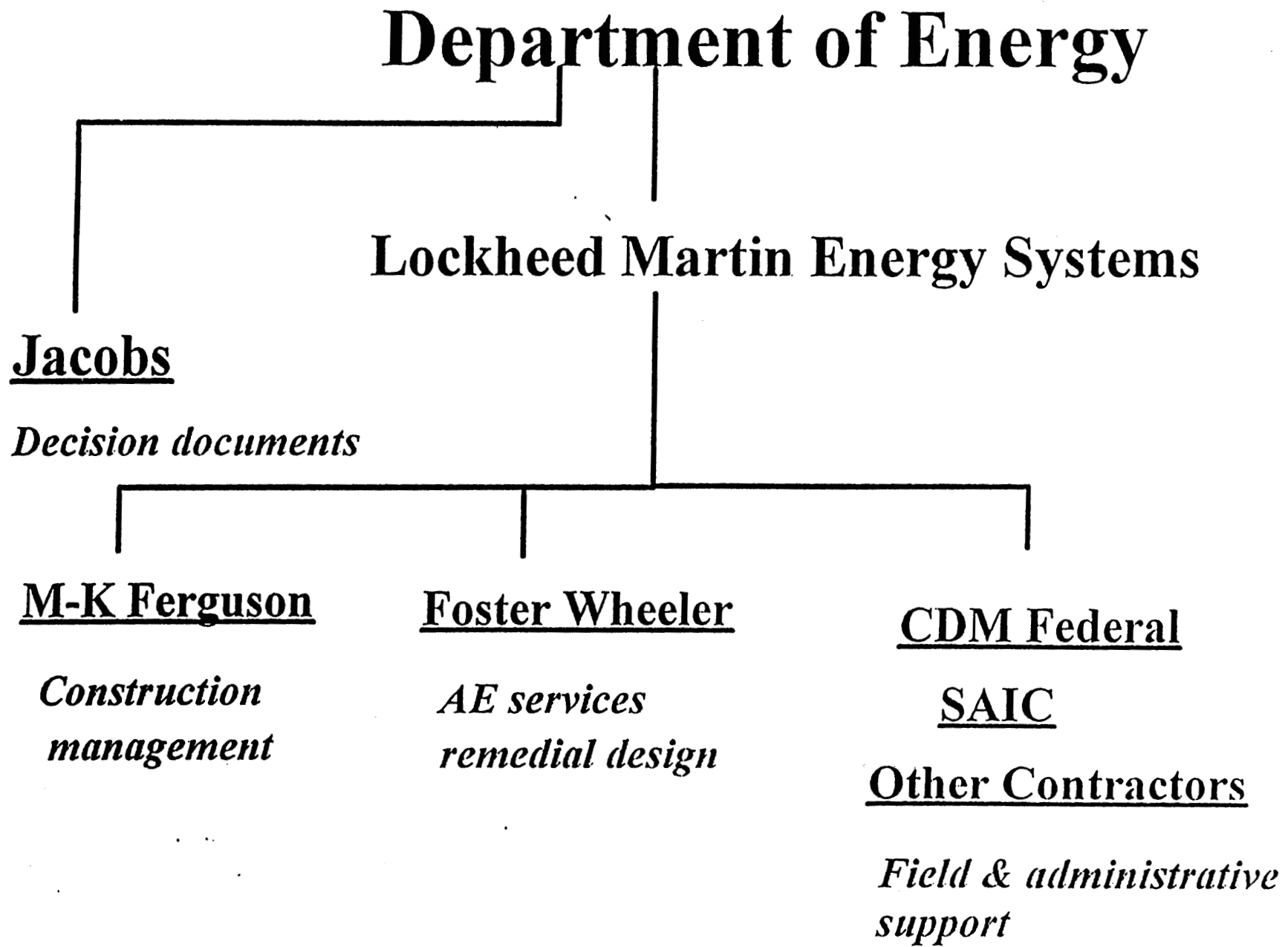


Figure 4.1. Roles and responsibilities.

the RA process depicted in Figure 3.1. The scheduling of work will initially include the application of a Generic WAG Schedule to support long-term planning and outyear budget projections.

The Generic WAG Schedule depicted in Figure 4.2 was approved by EPA and KDWM on January 19, 1995 and January 24, 1995, respectively to be used for long-term planning and outyear budget projections. The Generic WAG Schedule allows for the sequencing of activities, schedule logic, etc. Appendix VIII contains detailed information regarding the key schedule assumptions used for its development. Typically, streamlining efforts developed by all parties will result in a more streamlined schedule than that shown in Figure 4.2.

As the time frame for implementation of an RI/FS for a given WAG/Potential OU approaches, a project-specific schedule based on detailed scoping activities will be developed to replace the Generic WAG Schedule. As these changes occur, the dates in the SMP will be revised to incorporate the new schedules. The project-specific schedules will be proposed to EPA and KDWM in the appropriate primary documents. The RI/FS Work Plan will contain the project-specific schedule for work activities conducted through remedy selection. The ROD will contain a schedule for completing the remedial design and submitting the corresponding RD Report. The RD Report (90 Percent Design) will contain the project-specific schedule for completing remedial construction and submitting the corresponding RA Report.

4.3 ENFORCEABLE COMMITMENTS

As a WAG/Potential OU progresses through the RA process, various primary documents that correspond to each phase of the cleanup process will be developed and submitted to EPA and KDWM for review and approval. Document submittal dates established for certain primary documents submitted in the current FY, FY+1, and FY+2 time frame, and the groundwater and surface water OU dates will serve as enforceable commitments under the FFA and RCRA Permits.

As set forth in Section XX.C. of the FFA, the following primary documents are identified as enforceable commitments:

- a. Community Relations Plan;
- b. RI/FS Work Plans;
- c. RI Reports;
- d. Baseline Risk Assessment Reports;
- e. FS Reports;
- f. Proposed Plans;
- g. Records of Decision;
- h. Remedial Design Work Plans;
- i. Final Remedial Design Reports;
- j. Remedial Action Work Plans;
- k. Final Remediation Reports;
- l. Site Management Plans;
- m. Removal Work Plans;
- n. Engineering Evaluation/Cost Analyses (EE/CA);
- o. Action Memoranda;
- p. Data Management Plan;
- q. Site Evaluation;

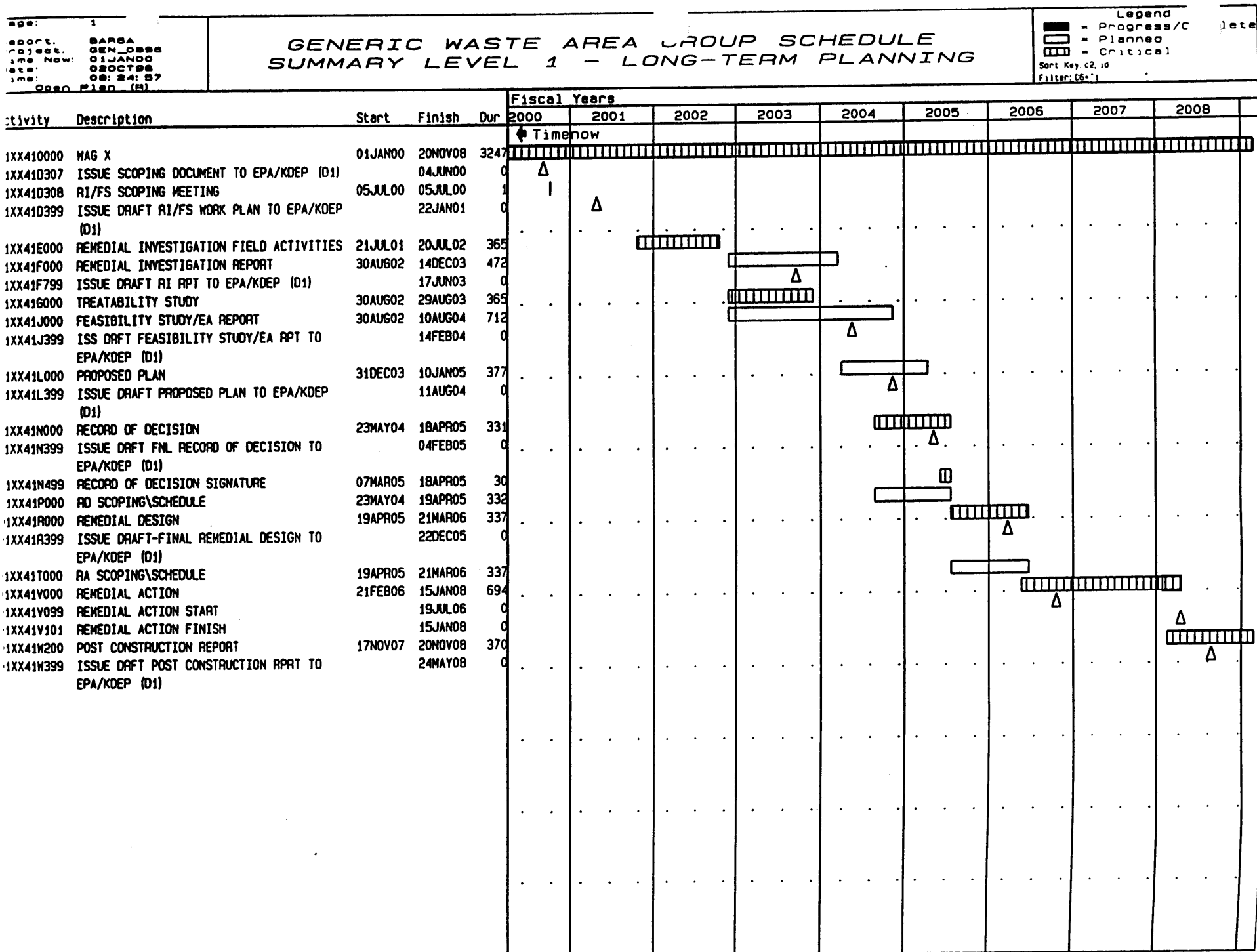


Figure 4.2

- r. Time-Critical Responsiveness Summaries; and
- s. Removal Notifications.

Appendix VIII contains DOE's proposal for establishing enforceable commitments for FY - FY+2 and groundwater and surface water OUs. Submittal of a revised Appendix VIII on November 15 of each FY will allow the Parties to finalize work scopes for FY+2 activities prior to initiating activity data sheet development in January. Accordingly, the approved FY+2 scope in the SMP appendices will serve as the basis for DOE's FY+2 budget request to the Office of Management and Budget.

The review and comment status for the D1 Primary Documents, the corresponding D2 submittal dates, and target dates for certain Secondary Documents are reported in the Regulatory Commitment Tracking System Report (DOE/OR/O7-1349) issued on a monthly routine basis. Also, detailed information on the status of field activities for each project is reported in the ER Program Quarterly Report.

4.4 COST AND PRODUCTIVITY SAVING

Definitions

For the purposes of this Section, the following terms shall have the meanings set forth below:

- 1) Actual Cost of Work Performed (ACWP)--Actual cost of work which has been costed or accrued through the DOE PGDP accounting system.
- 2) Baseline--Reference value of work defined by project. The reference value is the value of scheduled work (BCWS). BCWS is used to measure progress against the defined schedule and does not directly relate to the funding allocation for the project. The baseline is defined in Task Work Agreements (formally referred to as Fiscal Year Work Plans) or in Incentive Task Orders, depending on the contracting method DOE chooses to utilize with the prime contractor.
- 3) Baseline Change Proposal--Formal change control method to approve changes to baseline. Changes must be approved by DOE-OR, at a minimum.
- 4) Budget Authority (BA)--Funding formally allocated to contractor through the Financial Plan in a given FY. Funding can be incrementally allocated throughout the year to the contractor through revisions to the Financial Plan.
- 5) Estimated at Completion Budget Obligation (EAC BO)--Funding which is anticipated to be spent/costed or which will be formally obligated/committed through contractual means to a subtier contractor in a given FY.
- 6) Budgeted Cost of Work Performed (BCWP)--Estimated value of work performed in a given period. Comparison of BCWP to ACWP will identify cost variances associated with given projects. Comparison of BCWP to BCWS will identify schedule variances associated with given projects. Variances are used to identify potential problems which could impact

planned schedules or costs. They can also be used to identify potential cost underruns/savings.

- 7) Carryover (CO)--Funding which was obligated/committed in the prior year through contractual means which has been brought forward into the existing FY.
- 8) Direct Commitment (DC)--Funding which is anticipated to be carried into the next FY to meet contractual obligations. DCs identified in the current FY will become a significant basis of COs in the next FY.
- 9) Incentive Task Order (ITO)--Optional contracting method utilized by DOE which gives the contractor incentive to reduce overall project costs and/or schedule. ITO proposal defines scope and anticipated BCWS.
- 10) Prioritization--Formal method to prioritize work within the ORO system and ensure projects are funded in order of priority.
- 11) Task Work Agreement (TWA)--Document which defines the scope of a given project and anticipated BCWS. The TWA process is utilized on all projects (or parts of projects) which are not part of ITO.
- 12) Total Available Funds (TAF)--Total of BA and CO. This is the funding available to be utilized by DOE and contractors to execute programs. EAC BO cannot exceed TAF.
- 13) Data Quality Objective (DQO)--A set of criteria established for the collection of data. DQOs are the outputs of the DQO process developed by EPA. The DQO process is a planning tool based on the scientific method that clearly identifies an environmental problem, the remedial decisions to be made to address the problem, and the type, quantity, and quality of data needed to support the decision making. The DQO process may be applied in modified form to any data collection activity.

Implementation

The parties have agreed to consult during the site budget planning and execution processes to identify opportunities and develop and implement approaches for achieving cost and productivity savings in implementing the FFA. The parties have further agreed that the approaches for achieving cost and productivity savings should include, inter alia, review of the standards, requirements, and practices of managing and conducting activities at PGDP to ensure that the objectives of the FFA are carried out in an efficient and cost-effective manner, as well as efforts to control project scopes as much as is practicable to originally agreed upon scope to provide for maximum utilization of available allocated funding to implement the FFA. Notwithstanding the foregoing, the Parties understand that it may be necessary in some circumstances to alter project scopes based upon regulatory or other requirements. Furthermore, while the Parties recognize the value of identifying and implementing cost-saving measures and productivity improvements, the Parties agree that the identification and implementation of such measures is a goal, not a requirement, of the FFA. This section of the SMP and Section XVIII.F. of the FFA set forth the process by which certain percentages of cost and productivity savings will presumptively remain at PGDP and be applied to activities required under the FFA.

TWAs and ITOs are generated prior to the beginning of project activity. TWAs will be approved by DOE-OR to establish the current year baseline after DOE PGDP receives its FY budget allotment. ITOs will be developed as agreed between DOE and the contractor and will be used to supplement and further define the current year baseline. During negotiations of ITOs and TWAs, DOE will inform EPA and KNREPC of potential changes in work scope from the work scope developed during the DQO process. Upon request, DOE will provide copies of finally negotiated ITOs and TWAs to EPA and KNREPC. Notwithstanding the foregoing, the Parties understand and agree that changes from the work scope developed during the DQO process will be submitted as modifications to the appropriate work plan and, as such, will be subject to the provisions of the FFA applicable to such modifications including, but not limited to, review and dispute resolution. Additionally, during development of the SMP, DOE will consult with EPA and KNREPC regarding projected costs of work to be performed in FY+1. DOE is providing information regarding TWAs and ITOs to EPA and KNREPC for informational purposes only. Matters regarding TWAs and ITOs shall not be subject to the dispute resolution provisions of the FFA.

DOE will monitor project performance for each project on a monthly basis by defining BCWS, BCWP, and ACWP to determine if cost and/or schedule variances are developing which will require reallocation of funding between projects. EPA and KNREPC acknowledge that it may be necessary to reallocate available appropriated funds between projects to enable DOE to meet its enforceable commitments under the FFA. If the total of variances indicates that TAF is adequate, but is not allocated as needed between projects, reallocation between projects will be accomplished with DOE approval through the BCP and funding profile change process. On a quarterly basis, DOE will provide EPA and KNREPC with information summarizing the amounts of any variances and BCPs and will identify available realized cost and productivity savings. The variance and cost and productivity information may be included in the quarterly progress report required by Section XXII of the FFA. The Parties understand and agree that mere deferral of work and associated costs shall not constitute "cost and productivity savings" within the meaning of the FFA and the SMP.

Cost and productivity savings will be realized when TAF exceeds the amount of funding necessary to perform the work outlined in Appendix C of the FFA for a given FY, as well as any additional work, including, but not limited to, removal actions that may have been required under the FFA. In the event that projects achieve cost and productivity savings that result in excess funds being available after all enforceable commitments under the FFA have been met within a FY, subject to Section XVIII.F.4. of the FFA, a portion of the funding not contractually-obligated will stay at the PGDP Site and be reallocated to support other work at the site. Cost and productivity savings realized during a given FY may be carried over for performance of other work in subsequent years. DOE will confer with EPA and KNREPC in identifying the other work at PGDP to which any realized cost and productivity savings will be applied. Such other work may include work not required pursuant to the FFA. If EPA or KNREPC disagree with DOE's identification of other work to which realized cost and productivity savings will be applied, EPA or KNREPC may invoke the dispute resolution provisions of the FFA.

4.5 LONG-TERM PROJECTIONS

Long-term projections are considered work activities for FY+3 and beyond. The target dates for these activities are not considered enforceable commitments under the FFA and RCRA Permits, with the exception of the groundwater (WAG 26) and surface water units (WAGs 18 and 25). However, they will be used as the basis for establishing enforceable commitments once those activities enter the FY - FY+2

time frame. The FFA requires DOE to identify target dates by specific date for FY+3 activities and by FY quarter for FY+4 and beyond. The target dates included in Appendix IX assume full funding is available for implementation.

APPENDIX I
LIST OF SWMUs/AOCs

Appendix I

REVISED 06/03/96

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
1	C-747 OIL LANDFARM
2	C-749 URANIUM BURIAL GROUND
3	C-404 LOW-LEVEL RADIOACTIVE HAZARDOUS WASTE BURIAL GROUND
4	C-747 CONTAMINATED BURIAL YARD
5	C-746-F CLASSIFIED BURIAL YARD
6	C-747-B BURIAL GROUND
7	C-747-A BURIAL GROUND
8	C-746-K INACTIVE SANITARY LANDFILL
9	C-746-S RESIDENTIAL LANDFILL
10	C-746-T INERT LANDFILL
11	C-400 TRICHLOROETHYLENE LEAK SITE
12	C-747-A UF ₄ DRUM YARD
13	C-746-P CLEAN SCRAPYARD
14	C-746-E CONTAMINATED SCRAPYARD
15	C-746-C SCRAPYARD
16	C-746-D CLASSIFIED SCRAPYARD
17	C-616-E SLUDGE LAGOON
18	C-616-F FULL FLOW LAGOON
19	C-410-B NEUTRALIZATION LAGOON
20	C-410-E HF EMERGENCY HOLDING POND
21	C-611-W SLUDGE LAGOON
22	C-611-Y OVERFLOW LAGOON
23	C-611-V LAGOONS
24	C-750-D UNDERGROUND STORAGE TANK
25	C-750 1,000-GALLON WASTE OIL TANK
26	C-400 TO C-404 UNDERGROUND TRANSFER LINE
27	C-722 ACID NEUTRALIZATION TANK
28	C-712 ACID NEUTRALIZATION TANK

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
29	C-746-B TRU STORAGE AREAS
30	C-747-A BURN AREA
31	C-720 COMPRESSOR PIT WATER STORAGE TANK
32	C-728 CLEAN WASTE OIL TANK
33	C-728 MOTOR CLEANING FACILITY
34	C-746-M PCB WASTE STORAGE AREA
35	C-337 PCB WASTE STORAGE AREA
36	C-337 PCB WASTE STAGING AREA
37	C-333 PCB WASTE STAGING AREA
38	C-615 SEWAGE TREATMENT PLANT
39	C-746-B PCB WASTE STORAGE AREA
40	C-403 NEUTRALIZATION TANK
41	C-410-C NEUTRALIZATION TANK
42	C-616 CHROMATE REDUCTION FACILITY
43	C-746-B WASTE CHEMICAL STORAGE AREA
44	C-733 HAZARDOUS WASTE STORAGE AREA
45	C-746-R WASTE SOLVENT STORAGE AREA
46	C-409 HAZARDOUS WASTE PILOT PLANT
46A	C-746-Q HAZARDOUS AND LOW-LEVEL WASTE STORAGE BUILDING
47	C-400 TECHNETIUM STORAGE TANK AREA
48	C-400-A GOLD DISSOLVER STORAGE TANK
49	C-400-B WASTE SOLUTION STORAGE TANK
50	C-400-C NICKEL STRIPPER EVAPORATION TANK
51	C-400-D LIME PRECIPITATION TANK
52	C-400 WASTE DECONTAMINATION SOLUTION STORAGE TANKS
53	C-400 NaOH PRECIPITATION TANK
54	C-400 DEGREASER SOLVENT RECOVERY UNIT
55	C-405 INCINERATOR

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
56	C-540-A PCB WASTE STAGING AREA
57	C-541-A PCB WASTE STAGING AREA
58	NORTH-SOUTH DIVERSION DITCH (OUTSIDE PLT SECURITY AREA)
59	NORTH-SOUTH DIVERSION DITCH (INSIDE PLT SECURITY AREA)
60	C-375-E2 EFFLUENT DITCH (KPDES 002)
61	C-375-E5 EFFLUENT DITCH (KPDES 013)
62	C-375-S6 SOUTHWEST DITCH (KPDES 009)
63	C-375-W7 OIL SKIMMER DITCH (KPDES 008)
64	LITTLE BAYOU CREEK
65	BIG BAYOU CREEK
66	C-375-E3 EFFLUENT DITCH (KPDES 010)
67	C-375-E4 EFFLUENT DITCH (C-340 DITCH)
68	C-375-W8 EFFLUENT DITCH (KPDES 015)
69	C-375-W9 EFFLUENT DITCH (KPDES 001)
70	C-333-A VAPORIZER
71	C-337-A VAPORIZER
72	C-200 UNDERGROUND GASOLINE TANKS
73	C-710 UNDERGROUND GASOLINE TANKS
74	C-340 PCB SPILL SITE
75	C-633 PCB SPILL SITE
76	C-632-B H ₂ SO ₄ STORAGE TANK
77	C-634-B H ₂ SO ₄ STORAGE TANK
78	C-420 PCB SPILL SITE
79	C-611 PCB SPILL SITE
80	C-540 PCB SPILL SITE
81	C-541 PCB SPILL SITE
82	C-531 SWITCHYARD
83	C-533 SWITCHYARD
84	C-535 SWITCHYARD
85	C-537 SWITCHYARD
86	C-631 PUMP HOUSE AND COOLING TOWER

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
87	C-633 PUMP HOUSE AND COOLING TOWER
88	C-635 PUMP HOUSE AND COOLING TOWER
89	C-637 PUMP HOUSE AND COOLING TOWER
90	C-720 UNDERGROUND PETROLEUM NAPHTHA PIPE
91	UF ₆ CYLINDER DROP TEST AREA
92	FILL AREA FOR DIRT FROM C-420 PCB SPILL SITE
93	CONCRETE DISPOSAL AREA EAST OF PLANT SECURITY AREA
94	KOW TRICKLING FILTER AND LEACH FIELD
95	KOW BURN AREA
96	COOLING TOWER SCRAP WOOD PILE
97	C-601 DIESEL SPILL (previously AOC #A)
98	C-400 BASEMENT SUMP (previously AOC #B)
99	C-745 KELLOG BUILDING SITE (previously AOC #C)
100	FIRE TRAINING AREA (previously AOC #D)
101	C-340 HYDRAULIC SYSTEM (previously AOC #E)
102	PLANT STORM SEWER (previously 96a, 96b, and 96c)
103	CONCRETE RUBBLE PILE (1)
104	CONCRETE RUBBLE PILE (2)
105	CONCRETE RUBBLE PILE (3)
106	CONCRETE RUBBLE PILE (4)
107	CONCRETE RUBBLE PILE (5)
108	CONCRETE RUBBLE PILE (6)
109	CONCRETE RUBBLE PILE (7)
110	CONCRETE RUBBLE PILE (8)
111	CONCRETE RUBBLE PILE (9)
112	CONCRETE RUBBLE PILE (10)
113	CONCRETE RUBBLE PILE (11)
114	CONCRETE RUBBLE PILE (12)
115	CONCRETE RUBBLE PILE (13)
116	CONCRETE RUBBLE PILE (14)
117	CONCRETE RUBBLE PILE (15)

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
118	CONCRETE RUBBLE PILE (16)
119	CONCRETE RUBBLE PILE (17)
120	CONCRETE RUBBLE PILE (18)
121	CONCRETE RUBBLE PILE (19)
122	CONCRETE RUBBLE PILE (20)
123	CONCRETE RUBBLE PILE (21)
124	CONCRETE RUBBLE PILE (22)
125	CONCRETE RUBBLE PILE (23)
126	CONCRETE RUBBLE PILE (24)
127	CONCRETE RUBBLE PILE (25)
128	CONCRETE RUBBLE PILE (26)
129	CONCRETE RUBBLE PILE (27)
130	C-611 UST - 550 GALLON GAS TANK (WEST OF C-611)
131	C-611 UST - 50 GALLON GAS TANK (EAST OF C-611)
132	C-611 UST - 2000 GALLON OIL TANK (NORTH OF C-611)
133	C-611 UST - UNKNOWN SIZE, GROUTED TANK (SOUTH OF C-611)
134	C-611 UST - 1000 GALLON DIESEL/GAS TANK (SOUTHEAST OF C-611)
135	C-333 PCB SOIL CONTAMINATION (NORTH SIDE OF C-333)
136	C-740 TCE SPILL SITE (NORTHWEST CORNER, C-740 CONCRETE PAD)
137	C-746-A INACTIVE PCB TRANSFORMER/SUMP
138	C-100 SOUTH SIDE BERMS (C-611/615 SLUDGE ?)
139	C-746-A1 (UST)
140	C-746-A2 (UST)
141	C-720 INACTIVE TCE DEGREASER
142	C-750-A (GASOLINE UST)
143	C-750-B (DIESEL UST)
144	C-746-A HAZARDOUS AND MIXED WASTE STORAGE FACILITY
145	RESIDENTIAL/INERT LANDFILL BARROW AREA
146	CONCRETE RUBBLE PILE (40)
147	CONCRETE RUBBLE PILE (41)
148	CONCRETE RUBBLE PILE (42)

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
149	CONCRETE RUBBLE PILE (43)
150	CONCRETE RUBBLE PILE (44)
151	CONCRETE RUBBLE PILE (45)
152	CONCRETE RUBBLE PILE (46)
153	C-331 PCB SOIL CONTAMINATION - WEST SIDE
154	C-331 PCB SOIL CONTAMINATION - SOUTHEAST SIDE
155	C-333 PCB SOIL CONTAMINATION - WEST SIDE
156	C-310 PCB SOIL CONTAMINATION - WEST SIDE
157	KOW TOLUENE SPILL AREA
158	CHILLED WATER SYSTEM LEAK SITE
159	C-746-H3 STORAGE PAD
160	C-745 CYLINDER YARD SPOILS AREA - PCB SOIL CONTAMINATION
161	C-743-T01 TRAILER SITE - SOIL BACKFILL
162	C-617-A SANITARY WATER LINE - SOIL BACKFILL
163	C-304 BUILDING/HVAC PIPING SYSTEM - SOIL BACKFILL
164	KPDES OUTFALL DITCH 017 FLUME - SOIL BACKFILL
165	C-616-L PIPELINE AND VAULT SOIL CONTAMINATION
166	C-100 TRAILER COMPLEX SOIL CONTAMINATION (EAST SIDE)
167	C-720 WHITEROOM SUMP
168	KPDES OUTFALL DITCH 012
169	C-410-E HF VENT SURGE PROTECTION TANK
170	C-729 ACETYLENE BUILDING DRAIN PITS
171	C-617-A LAGOON
172	C-726 SANDBLASTING FACILITY
173	C-746-A TRASH SORTING FACILITY
174	C-745-K LOW LEVEL STORAGE AREA
175	CONCRETE RUBBLE PILE (28)
176	C-331 RCW LEAK NORTHWEST SIDE
177	C-331 RCW LEAK EAST SIDE
178	C-724-A PAINT SPRAY BOOTH

SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN	
UNIT	NAME
179	PLANT SANITARY SEWER SYSTEM
180	OUTDOOR FIRING RANGE (WKWMA)
181	OUTDOOR FIRING RANGE (PGDP)
182	WESTERN PORTION OF YELLOW WATER LINE
183	McGRAW UST
184	CONCRETE RUBBLE PILE (29)
185	C-611-4 HORSESHOE LAGOON
186	C-751 FUEL FACILITY
187	C-611 SEPTIC SYSTEM
188	C-633 SEPTIC SYSTEM
189	C-637 SEPTIC SYSTEM
190	C-337-A SEWAGE TREATMENT AERATION TANK
191	C-333-A SEWAGE TREATMENT AERATION TANK
192	C-710 ACID INTERCEPTOR PIT
193	McGRAW CONST. FACILITIES (SOUTH-SIDE, CYLINDER YARDS)
194	McGRAW CONST. FACILITIES (SOUTH-SIDE)
195	CURLEE ROAD CONTAMINATED SOIL MOUND
196	C-746-A SEPTIC TANK
197	CONCRETE RUBBLE PILE (30)
198	C-410-D AREA SOIL CONTAMINATION
199	BIG BAYOU MONITORING STATION
200	SOIL CONTAMINATION SOUTH OF TSCA WASTE STORAGE FACILITY
201	NORTHWEST GROUNDWATER PLUME
202	NORTHEAST GROUNDWATER PLUME
203	C-400 SUMP
204	DYKES ROAD HISTORICAL STAGING AREA
205	EASTERN PORTION OF YELLOW WATER LINE

II-1

APPENDIX II
PRIMARY DOCUMENT OUTLINES

RI/FS SCOPING DOCUMENT

1. A summary of how the RI/FS is to be conducted in a manner consistent with §300.430(a) and (b) of the NCP.
2. A summary of the following information:
 - 2.1 Existing data pertaining to the characteristics of the release or potential release.
 - 2.1.1 Previous investigations
 - 2.1.2 Historical records
 - 2.2 Conceptual model of release
 - 2.2.1 Identify potential release and exposure pathways
 - 2.2.2 Identify potential contaminants of concern
 - 2.3 Identify likely response scenarios, potentially applicable and applicability of presumptive remedies and innovative technologies
 - 2.4 Identify need for limited data collection efforts to assist RI/FS scoping
 - 2.5 Identify the type, quality, and quantity (i.e., DQOs) of the data to be collected during the RI/FS
 - 2.6 Initiate the identification of potential federal and state ARARs and, as appropriate, other criteria, advisories, or guidance to be considered
3. Applicability of streamlined response actions:
 - 3.1 Removals
 - 3.2 Early remedial actions
 - 3.2.1 Interim remedial actions
 - 3.2.2 Final remedial actions

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

**INTEGRATED RI/FS, RFI, AND CORRECTIVE MEASURES STUDY (CMS) WORK PLAN
BASED UPON OUTLINE FROM THE
RFI WORK PLAN FOR WAG 13**

Executive Summary

1. Introduction
 - 1.1 Project Scope
 - 1.2 Project Objectives and Goals
 - 1.3 Project DQOs
 - 1.4 Observational Approach
2. Project Organization and Management Plan
 - 2.1 Organization, Responsibilities, and Staffing
 - 2.2 Project Coordination
 - 2.3 PGDP Tasks and Implementation Plan
 - 2.4 Project Schedule
 - 2.5 RFI Work Plan Activities
 - 2.6 Field Preparation Activities
 - 2.7 Field Support Facility
3. Regulatory Setting
 - 3.1 ACO
 - 3.2 Environmental Programs
 - 3.3 RCRA
 - 3.4 CERCLA/NPL
 - 3.5 NEPA
 - 3.6 Investigative Overview
4. Environmental Setting/Site Characterization
 - 4.1 Location
 - 4.2 Demography and Land Use
 - 4.3 General History
 - 4.4 Regional Geologic Setting
 - 4.5 Geology of PGDP
 - 4.6 Hydrogeology
 - 4.7 Surface Water Hydrology
 - 4.8 Ecological Setting
 - 4.9 Climatology
5. Characterization of Site/Previous Analytical Data
 - 5.1 Area 1
 - 5.2 Area 2
 - 5.3 Area 3

6. Initial Evaluation
 - 6.1 Risk Assessment
 - 6.1.1 Data Evaluation
 - 6.1.2 Exposure Assessment
 - 6.1.3 Toxicity Assessment
 - 6.1.4 Risk Characterization
 - 6.1.5 Preliminary Remediation Goals (RAGS Vol. 1, Part B)
 - 6.1.6 Evaluation of Uncertainties
 - 6.1.7 Ecological Assessment Methods
 - 6.2 Preliminary Data Evaluation
 - 6.2.1 Characterization and Inventory of Wastes
 - 6.2.2 Information Status of Key Assessment Factors
 - 6.2.3 Release Potential from Contaminant Sources
 - 6.3 Sampling Strategy
7. Treatability Studies
 - 7.1 Identification of Treatability Studies Needed
 - 7.2 Description of Study to be Performed
 - 7.3 Additional Site Data Needed for Study or Evaluation
 - 7.4 Schedule for Submission of Treatability Study Work Plan (Section 2 also)
8. Alternatives Development
 - 8.1 Description of the General Approach to Investigating and Evaluating Potential Remedies
 - 8.2 Overall Objectives of the Study
 - 8.3 Preliminary Identification of General Response Actions and Remedial Technologies
 - 8.4 Remedial Alternatives Development Screening
 - 8.5 Detailed Analysis of Remedial Alternatives
 - 8.6 Format for FS/CMS Report (Appendix Document Outlines)
 - 8.7 Schedule/Timing for Conducting the Study (Section 2 also)
9. Field Sampling Plan
 - 9.1 Sampling Media and Methods
 - 9.2 Sample Analysis
 - 9.3 Site-Specific Sampling Plans
 - 9.4 Sampling Procedures
 - 9.5 Documentation
 - 9.6 Sample Location Survey
10. Health and Safety Plan*
11. Quality Assurance Project Plan*
12. Data Base Management Plan*

13. Waste Management Plan*

- 13.1 Types of Investigation Derived Waste
- 13.2 Waste Management Tracking Responsibilities
- 13.3 Investigation Derived Waste Request for Disposal, Storage, and Labelling
- 13.4 Transportation and Storage of Investigation Derived Waste
- 13.5 Screening of Analytical Samples
- 13.6 Investigation Derived Waste Characterization Sampling and Analysis
- 13.7 Sample Residuals and Miscellaneous Waste Management
- 13.8 Effect of Land Disposal Restrictions

14. Community Relations Plan*

15. References

Appendices

- A. ARARs
- B. Statistical Evaluation Methods
- C. Miscellaneous Forms
- D. Document Outlines

***Programmatic plans will be submitted, rather than included, in each project work plan.**

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

INTEGRATED RFI/RI REPORT

Executive Summary

1. Introduction
 - 1.1 Purpose of Report
 - 1.2 Site Background
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Previous Investigations
 - 1.3 Report Organization
2. Study Area Investigation
 - 2.1 Includes all field activities associated with site characterization. These may include physical and chemical monitoring of some of the following:
 - 2.1.1 Surface Features
 - 2.1.2 Contaminant Source Investigations
 - 2.1.3 Meteorological Investigations
 - 2.1.4 Surface Water and Sediment Investigations
 - 2.1.5 Geological Investigations
 - 2.1.6 Soil and Vadose Zone Investigations
 - 2.1.7 Groundwater Investigations
 - 2.1.8 Human Population Surveys
 - 2.1.9 Ecological Investigations
 - 2.2 If technical memoranda documenting field activities were prepared, they may be included in an appendix and summarized in this report section.
3. Physical Characteristics of the Study Area
 - 3.1 Includes results of the field activities to determine physical characteristics. These may include some of the following:
 - 3.1.1 Surface Features
 - 3.1.2 Meteorology
 - 3.1.3 Surface Water Hydrology
 - 3.1.4 Geology
 - 3.1.5 Soils
 - 3.1.6 Hydrogeology
 - 3.1.7 Demography and Land Use
 - 3.1.8 Ecology
4. Nature and Extent of Contamination
 - 4.1 Presents the results of site characterization, both natural chemical components and contaminants of the following media:
 - 4.1.1 Sources (Lagoons, Sludges, Tanks, etc.)
 - 4.1.2 Soils and Vadose Zone
 - 4.1.3 Groundwater
 - 4.1.4 Surface Water and Sediments
 - 4.1.5 Air

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5. Fate and Transport
 - 5.1 Potential Routes of Migration (i.e., Air, Groundwater, etc.)
 - 5.2 Contaminant Persistence
 - 5.2.1 Describe estimated persistence in the study area environment and physical, chemical, and/or biological factors of importance for the media of interest.
 - 5.3 Contaminant Migration
 - 5.3.1 Describe factors affecting contaminant migration for the media of importance (e.g., sorption onto soils, solubility in water, movement of groundwater, etc.).
 - 5.3.2 Describe modeling methods and results, if applicable.
6. BRA
 - 6.1 Human Health Evaluation
 - 6.1.1 Exposure Assessment
 - 6.1.2 Toxicity Assessment
 - 6.1.3 Risk Characterization
 - 6.2 Environmental Evaluation
7. Summary and Conclusions
 - 7.1 Summary
 - 7.1.1 Nature and Extent of Contamination
 - 7.1.2 Fate and Transport
 - 7.1.3 Risk Assessment
 - 7.2 Conclusions
 - 7.2.1 Data Limitations and Recommendations for Future Work
 - 7.2.2 Recommended RA Objectives

Appendices

- A Technical Memoranda on Field Activities
- B Analytical Data and QA/QC Evaluation Results
- C Risk Assessment Methods

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

INTEGRATED FS/CMS REPORT

Executive Summary

1. Introduction
 - 1.1 Purpose and Organization of Report
 - 1.2 Background Information (Summarized from RI/RFI Report)
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Nature and Extent of Contamination
 - 1.2.4 Contaminant Fate and Transport
 - 1.2.5 BRA
2. Identification and Screening of Technologies
 - 2.1 Introduction
 - 2.2 RA Objectives -

Presents the development of RA objectives for each medium of interest. For each medium, the following should be discussed:

 - 2.2.1 Contaminants of Interest
 - 2.2.2 Allowable Exposure Based upon Risk Assessment (including ARARs)
 - 2.2.3 Development of Remediation Goals
 - 2.3 General Response Actions -

For each medium of interest, describe the estimation of areas or volumes to which treatment, containment, or exposure technologies may be applied.
 - 2.4 Identification and Screening of Technology Types and Process Options -

For each medium of interest, describe:

 - 2.4.1 Identification and Screening of Technologies
 - 2.4.2 Evaluation of Technologies and Selection of Representative Technologies
3. Development and Screening of Alternatives
 - 3.1 Development of Alternatives -

Describes rationale for combination of technologies/media into alternatives.
 - 3.2 Screening of Alternatives (if conducted)
 - 3.2.1 Introduction
 - 3.2.2 Alternative 1
 - 3.2.2.1 Description
 - 3.2.2.2 Evaluation
 - 3.2.3 Alternative 2 (etc.)
 - 3.2.4 Alternative 3 (etc.)
4. Detailed Analysis of Alternatives
 - 4.1 Introduction
 - 4.2 Individual Analysis of Alternatives
 - 4.2.1 Alternative 1
 - 4.2.1.1 Description
 - 4.2.1.2 Assessment

- 4.2.2 Alternative 2 (etc.)
- 4.2.3 Alternative 3 (etc.)
- 4.3 Comparative Analysis

Bibliography

Appendices

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

PROPOSED PLAN/STATEMENT OF BASIS

1. Introduction
 - 1.1 Purpose
 - 1.2 Site Name and Location
 - 1.3 Lead and Support Agencies
 - 1.4 Objectives of the Proposed Plan
2. Site Background
 - 2.1 History of Site Activities that Led to Current Problems at the Site
 - 2.2 The Site Area or Media to be Addressed by the Selected Remedy
3. Scope and Role of the OU or Response Action
 - 3.1 Identify the principal threats posed by conditions at the site.
 - 3.2 Describe the scope of the problems addressed by the preferred alternative and its role within the overall site cleanup strategy.
4. Summary of Site Risks
 - 4.1 Provide a brief overview of the BRA, including the contaminated media, contaminants of concern, exposure pathways and populations, and potential or actual risks.
 - 4.2 Describe how current risks compare with remediation goals.
 - 4.3 Discuss environmental risks.
5. Summary of Alternatives
 - 5.1 Briefly describe each of the alternatives evaluated in the detailed analysis of the FS.
6. Evaluation of Alternatives and the Preferred Alternative
 - 6.1 Identify the preferred alternative.
 - 6.2 Introduce the nine evaluation criteria.
 - 6.3 Summarize the expected performance of the preferred alternative.
 - 6.4 Conformance of preferred alternative to statutory findings and preference for treatment
 - 6.5 Preliminary identification of preferred alternative design criteria and considerations
 - 6.5.1 Special technical problems
 - 6.5.2 Additional engineering/characterization data required
 - 6.5.3 Permits and regulatory requirement
 - 6.5.4 Access, easements, right of way
 - 6.5.5 Environmental impacts
 - 6.5.6 Health and safety requirements
 - 6.6 Time frame for design and implementation of preferred alternative
 - 6.7 General Operation and Maintenance and long-term monitoring requirements of preferred alternative
7. Community Participation
 - 7.1 Public Comment Period
 - 7.2 Public Meetings
 - 7.3 Contact Personnel
 - 7.4 Administrative Record Availability

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

RECORD OF DECISION

1. Declaration
 - Site Name and Location
 - Statement of Basis and Purpose
 - Assessment of the Site
 - Description of the Selected Remedy
 - Statutory Determinations
 - Signature and Support Agency Acceptance of the Remedy
2. Decision Summary
 - 2.1 Site Name and Location
 - 2.2 Site History and Enforcement Activities
 - 2.3 Highlights of Community Participation
 - 2.4 Scope and Role of OU
 - 2.5 Site Characteristics
 - 2.6 Summary of Site Risks
 - 2.8 Description of Alternatives
 - 2.9 Summary of Comparative Analysis of Alternatives
 - 2.10 Selected Remedy
 - 2.11 Statutory Determinations
 - 2.12 Documentation of Significant Changes
 - 2.13 Discussion of any hazardous substances, contaminants or pollutants left on-site and need for Five-Year Review of remedial action
3. Responsiveness Summary
 - 3.1 Community Preferences
 - 3.2 Integration of Comments
4. Remedial Design Schedule With Summary (intended to satisfy Remedial Design Work Plan)
 - 4.1 Purpose
 - 4.2 Implementation of Remedial Design Schedule
 - 4.3 30 Percent Scoping Meeting, 60 Percent Progress Meeting, and 90 Percent Design Report

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

**REMEDIAL DESIGN REPORT
(90 PERCENT DESIGN)**

Based upon 90 percent design:

1. Brief Summary of Action
2. Description of Key Design Features
3. Schedule for Remedial Construction
 - 3.1 Purpose
 - 3.2 Implementation Schedule (intended to satisfy Remedial Action Work Plan)

Appendix

90 Percent Design Drawings

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

POSTCONSTRUCTION REPORT

1. Brief description of how outstanding items noted in the Prefinal Inspection were resolved;
2. Explanation of modifications made during the RA to the original Remedial Design and RA Work Plans, and why these changes were made;
3. As-built and record drawings;
4. Synopsis of the construction work defined in this Agreement and certification that the construction work has been completed; and
5. Capital Cost Estimate.

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

OPERATION AND MAINTENANCE PLAN

1. Equipment start-up and operator training:
 - 1.1 Technical specifications governing treatment systems;
 - 1.2 Requirements for providing appropriate service visits by experienced personnel to supervise the installation, adjustment, start-up, and operation of the systems; and
 - 1.3 Schedule for training personnel regarding appropriate operational procedures once start-up has been successfully completed.
2. Description of normal O&M:
 - 2.1 Description of tasks required for system operation;
 - 2.2 Description of tasks required for system maintenance;
 - 2.3 Description of prescribed treatment or operating conditions; and
 - 2.4 Schedule showing the required frequency for each O&M task.
3. Description of potential operating problems:
 - 3.1 Description and analysis of potential operating problems;
 - 3.2 Sources or information regarding problems; and
 - 3.3 Common remedies or anticipated corrective actions.
4. Description of routine monitoring and laboratory testing:
 - 4.1 Description of monitoring tasks;
 - 4.2 Description of required laboratory tests and their interpretation;
 - 4.3 Required QA/QC; and
 - 4.4 Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.
5. Description of alternate O&M:
 - 5.1 Should system fail, alternate procedures to prevent undue hazard; and
 - 5.2 Analysis of vulnerability and additional resource requirements should a failure occur.
6. Safety Plan:
 - 6.1 Description of precautions to be taken and required health and safety equipment, etc., for site personnel protection; and
 - 6.2 Safety tasks required in the event of systems failure.
7. Description of equipment:
 - 7.1 Equipment identification
 - 7.2 Installation of monitoring components
 - 7.3 Maintenance of site equipment
 - 7.4 Replacement schedule for equipment and installation components
8. Records and reporting:
 - 8.1 Daily operating logs,
 - 8.2 Laboratory records,
 - 8.3 Records of operating cost,
 - 8.4 Mechanism for reporting emergencies,

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- 8.5 Personnel and maintenance records, and
- 8.6 Monthly reports to state/federal agencies (satisfied by the FFA Quarterly Reports).

9. Projected O&M Costs

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

FINAL REMEDIAL ACTION REPORT*

1. Introduction
 - 1.1 General description of site
 - 1.1.1 Location
 - 1.1.2 Description
 - 1.1.3 History
 - 1.2 General Description of Remedy
 - 1.2.1 Components of remedy
 - 1.2.2 Contaminants dealt with
2. Chronology of Events
3. Performance Standards and Construction Quality Control
 - 3.1 Standards
 - 3.2 Results of field sampling
 - 3.3 Location and frequency of tests
 - 3.4 Basis for determination that standards were met
4. Construction Activities
 - 4.1 Narrative description
 - 4.2 Tabular summaries
 - 4.2.1 Quantities excavated
 - 4.2.2 Cleanup levels achieved
 - 4.2.3 Material and equipment used
 - 4.3 Names and roles of major design and remedial action contractors
 - 4.4 Participation by other federal agencies
 - 4.5 Lessons learned
 - 4.5.1 Problems encountered
 - 4.5.2 Options considered
 - 4.5.3 Process used to select solutions
 - 4.5.4 Causes of delays
 - 4.5.5 Innovative solution
 - 4.5.6 Time- or cost-saving measures
5. Final Inspection
 - 5.1 List of inspection Attendees
 - 5.2 Deficiencies found
 - 5.3 Resolution of deficiencies
6. Certification That Remedy is Operational and Functional
 - 6.1 SOW was performed within desired specifications
 - 6.2 Affirmation that performance standards have been met
 - 6.3 Basis for determination

- 7. Operation and Maintenance
 - 7.1 Highlights of operation and maintenance plan
 - 7.2 Potential problems or concerns
- 8. Summary of Project Costs
 - 8.1 Final costs
 - 8.2 Comparison of final costs to original estimate
 - 8.3 Need for and cost of modifications
 - 8.4 Summary of regulatory agency oversight costs

*The Final Remedial Action Report shall be submitted after the O&M Period for each OU.

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

FINAL SITE REMEDIATION REPORT*

The Final Site Remediation Report shall include the following:

1. Synopsis of the work defined in this Agreement and a demonstration that the performance standards have been attained;
2. Certification that the RA has been completed in full satisfaction of the requirements of this Agreement; and
3. A description of how DOE will operate and maintain the RA.

*The Final Site Remediation Report shall be the Site Delisting Report.

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

SECONDARY DOCUMENT OUTLINES

PRELIMINARY CHARACTERIZATION SUMMARY REPORT

EXECUTIVE SUMMARY

- 1. Introduction**
 - 1.1 Background**
 - 1.2 RFI Process**
 - 1.3 PCSR Organization**
 - 2. Screening and Evaluation Methods**
 - 2.1 Introduction**
 - 2.2 Evaluation Methods**
 - 2.3 Background Reference Values**
 - 2.4 Risk-Based Screening Values (PRGs)**
 - 2.4.1 Site-Specific Exposure Scenarios**
 - 2.4.2 Target Risk Levels**
 - 2.4.3 Toxicity Values**
 - 2.5 Certainty Analysis**
 - 3. PRG/Background Screening Results**
 - 3.1 WAG 1**
 - 3.1.1 SWMU 1**
 - 3.1.2 SWMU 2**
 - 3.1.3 SWMU 3**
 - 3.2 WAG 2**
 - 3.2.1 SWMU 4**
 - 3.2.2 SWMU 5**
 - 4. SWMU Summary and Recommendations**
 - 5. References**
- Appendix A: Figures**
- Appendix B: Tables**
- Appendix C: Preliminary Remediation Goal Calculations**
- Appendix D: Statistical Evaluation Method for Chemical Sample Results**
From the Paducah Site
- Appendix E: Laboratory Data Qualifier Definitions**

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above-referenced document.

**INTEGRATED QUARTERLY REPORTS
COMPILED FROM THE EPA HSWA PERMIT, DRAFT FFA**

- I. Work performed during previous quarter (include summaries of findings and any deviations from the work plan):**
- II. Schedules of activities to be taken during upcoming quarter (including projected work/crucial phases of construction):**
- III. Identity and assigned tasks of DOE Contractors for work to be performed for this project:**
- IV. Statement of the manner and extent to which the requirements and time schedules are being met:**
- V. Primary/Secondary Document Tracking System:**
 - A) Documents under review and/or preparation for the previous quarter:**
 - B) Due dates for completion of review/modification tasks:**
- VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):**
- VII. Summary of all contacts with local community, public interest groups, or state government:**
- VIII. Changes in relevant personnel:**
- IX. Actual Cost for Operation and Maintenance, if appropriate:**

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above referenced document.

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**PRELIMINARY ASSESSMENT/SITE INSPECTION REPORT
AND SWMU ASSESSMENT REPORT**

UNIT NUMBER:

UNIT NAME:

DATE:

REGULATORY STATUS:

LOCATION:

APPROXIMATE DIMENSION:

FUNCTION:

BRIEF HISTORY:

OPERATIONAL STATUS:

DATES OPERATED:

SITE/PROCESS DESCRIPTION:

WASTE DESCRIPTION:

WASTE QUANTITY:

SUMMARY OF ENVIRONMENTAL SAMPLING DATA:

DESCRIPTION OF RELEASE AND MEDIA AFFECTED:

GROUNDWATER:

SURFACE WATER:

SOIL:

ECOLOGY AFFECTED (i.e., endangered/threatened species)

DOCUMENTATION OF NO RELEASE:

IMPACT ON OR BY OTHER SWMU/AOC:

PRG COMPARISON:

RFI NECESSARY:

NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above referenced document.

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APPENDIX III

REGULATORY STATUS OF SWMUs/AOCs

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Appendix III-A

SWMU SUMMARY, U.S. DOE PGDP PADUCAH, KENTUCKY

List of SWMUs and AOCs requiring an RFI/RI:

<u>SWMU/AOC</u>	<u>DESCRIPTION</u>
1	C-747-C Oil Landfarm
2	C-749 Uranium Burial Ground
4	C-747 Contaminated Burial Ground
5	C-746-F Classified Burial Ground
6	C-747-B Burial Area
7	C-747-A Burial Ground
8	C-746-K Inactive Sanitary Landfill
11	C-400 Trichloroethylene Leak Site
12	C-747-A UF ₄ Drum Yard
13	C-746-P Clean Scrap Yard
14	C-746-E Contaminated Scrap Yard
15	C-746-C Scrap Yard
16	C-746-D Classified Scrap Yard
17	C-616-E Lagoon
18	C-616-F Lagoon
19	C-410-B HF Neutralization Lagoon
20	C-410-E HF Emergency Holding Pond
21	C-611-V Sludge Lagoon
22	C-611-Y Overflow Lagoon
23	C-611-W Lagoon
24	C-750-D Underground Storage Tank (UST)
26	C-400 To C-404 Underground Transfer Line
27	C-722 Acid Neutralization Tank
28	C-712 Acid Neutralization Lagoon
30	C-747-A Burn Area
31	C-720 Compressor Pit Water Storage Tank
32	C-728 Clean Waste Oil Tank
33	C-728 Motor Cleaning Facility
38	C-615 Sewage Treatment Plant
40	C-403 Neutralization Tank
41	C-410-C Neutralization Tank
42	C-616 Chromate Reduction Facility
47	C-400 Technetium Storage Tank Area
55	C-405 Incinerator
56	C-540-A PCB Staging Area
57	C-541-A PCB Waste Staging Area
58	N-S Diversion Ditch (outside security fence)

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SWMU/AOC

DESCRIPTION

59	N-S Diversion Ditch (inside security fence)
60	C-375-E2 Effluent Ditch (KPDES 002)
61	C-375-E5 Effluent Ditch (KPDES 013)
62	C-375-S6 Southwest Ditch (KPDES 009)
63	C-375-W7 Oil Skimmer Ditch (KPDES 008)
64	Little Bayou Creek
65	Big Bayou Creek
66	C-375-E3 Effluent Ditch (KPDES 010 Ditch)
67	C-375-E4 Effluent Ditch (C-340 Ditch)
68	C-375-W8 Effluent Ditch (KPDES 015)
69	C-375-W9 Effluent Ditch (KPDES 001)
70	C-333-A Vaporizer
71	C-337-A Vaporizer
74	C-340 PCB Transformer Spill Site
75	C-633 PCB Spill Site
76	C-632-B Sulfuric Acid Storage Tank
77	C-634-B H ₂ SO ₄ Storage Tank
78	C-420 PCB Spill Site
79	C-611 PCB Spill Site
80	C-540-A PCB Spill Site
81	C-541 PCB Spill Site
82	C-531 Switchyard
83	C-533 Switchyard
84	C-535 Switchyard
85	C-537 Switchyard
86	C-631 Pumphouse and Cooling Tower
87	C-633 Pumphouse and Cooling Tower
88	C-635 Pumphouse and Cooling Tower
89	C-637 Pumphouse and Cooling Tower
91	UF ₆ Cylinder Drop Test Area
92	Fill Area for Dirt from the C-420 PCB Spill Site
93	Concrete Rubble Pile
94*	Kentucky Ordnance Works (KOW) Trickling Filter and Leach Field
95*	KOW Burn Area
97	C-601 Diesel Spill
98	C-400 Basement Sump
99	C-745 Kellogg Building Site
100	Fire Training Area
101	C-340 Hydraulic System
102	Plant Storm Sewer
103-129	Concrete Rubble Pile(s)
130	C-611 550-Gallon Gasoline UST
131	C-611 50-Gallon Gasoline UST
132	C-611 2000-Gallon Oil UST
133	C-611 Unknown Size, Grouted UST

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SWMU/AOC

DESCRIPTION

134	C-611 1000-Gallon Diesel/Gasoline Tank
135	C-333 PCB Soil Contamination
136	C-740 TCE Spill Site
137	C-746-A Inactive PCB Transformer Area
138	C-100 South Side Berm
139	C-746-A1 UST
140	C-746-A2 UST
145	Residential/Inert Landfill Borrow Area
153	C-331 PCB Soil Contamination (West)
154	C-331 PCB Soil Contamination (Southeast)
155	C-333 PCB Soil Contamination (West)
156	C-310 PCB Soil Contamination (West Side)
157*	KOW Toluene Spill Area
158	Chilled Water System Leak Site
159	C-746-H3 Storage Pad
160	C-745 Cylinder Yard Spoils Area (PCB Soils)
161	C-743-T-01 Trailer Site (Soil Backfill)
162	C-617-A Sanitary Water Line (Soil Backfill)
163	C-304 Bldg/Heating Ventilation and Air Conditioning Piping System (Soil Backfill)
164	KPDES Outfall Ditch 017 Flume (Soil Backfill)
165	C-616-L Pipeline and Vault Soil Contamination
166	C-100 Trailer Complex Soil Contamination
167	C-720 Whiteroom Sump
168	KPDES Outfall Ditch 012
169	C-410-E Hydrofluoric Acid Vent Surge Protection Tank
170	C-729 Acetylene Building Drain Pits
171	C-617-A Lagoons
172	C-726 Sandblasting Facility
175	Concrete Rubble Pile (28)
176	C-331 Recirculating Water Leak Northwest Side
177	C-331 Recirculating Water Leak East Side
178	C-724-A Paint Spray Booth
179	Plant Sanitary Sewer System
180	Outdoor Firing Range (WKWMA)
181	Outdoor Firing Range (PGDP)
182*	Western Portion of the Yellow Water Line
183	McGraw UST
184	Concrete Rubble Pile (29)
185	C-611-4 Horseshoe Lagoon
192	C-71- Acid Interceptor Pit
193	McGraw Const. Facilities (South side, Cylinder Yards)
194	McGraw Const. Facilities (South side)
195	Curlee Road Contaminated Soil Mound
196	C-746-A Septic System

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<u>SWMU/AOC</u>	<u>DESCRIPTION</u>
197	Concrete Rubble Pile (30)
198	C-410-D Area Soil Contamination
199	Big Bayou Creek Monitoring Station
200	Soil Contamination South of TSCA Waste Storage Facility
201	Northwest Groundwater Contamination Plume
202	Northeast Groundwater Contamination Plume
203	C-400 Sump
204	Dykes Road Historical Staging Area
205	Eastern Portion of the Yellow Water Line

- * Units 94, 95, 157, and 182 are facilities that were part of the Kentucky Ordnance Works, a munitions production plant during World War II. These facilities were never used by PGDP. They are included in the PGDP SWMU list because they are within existing DOE property boundary. A preliminary environmental investigation is being conducted at these SWMUs by the U.S. Army Defense Environmental Restoration Program.

Appendix III-B

**List of SWMUs and AOCs that
require No Further Action at this time.**

<u>SWMU</u>	<u>SWMU Description</u>
9**	C-746-S Residential Landfill
10**	C-746-T Inert Landfill
25*	C-750 1000-gallon Waste Oil Tank (UST)
29	C-746 TRU Storage Area
34	C-746-M PCB Waste Storage Area
35	C-337 PCB Waste Storage Area
36	C-337 PCB Waste Staging Area
37	C-333 PCB Waste Staging Area
39	C-746-B PCB Waste Storage Area
48	C-400-A Gold Dissolver Storage Tank
51	C-400-D Lime Precipitation Tank
52	C-400 Waste Decontamination Tanks
53	C-400 NaOH Precipitation Tank
54	C-400 Degreaser Solvent Recovery Unit
72*	C-200 UST
73*	C-710 UST
90	C-720 Underground Petroleum Naptha Pipe
96	Cooling Tower Wood Scrap Pile
141	C-720 Inactive TCE Degreaser
142*	C-750-A 10,000-Gallon Gasoline UST
143*	C-750-B 10,000-Gallon Diesel UST
146-152	Concrete Rubble Piles
173	C-746-A Trash Sorting Facility
174	C-745-K Low Level Storage Area
186	C-751 Fuel Facility
187	C-611 Septic System
188	C-633 Septic System
189	C-637 Septic System
190	C-337A Sewage Treatment Aeration Tank
191	C-333A Sewage Treatment Aeration Tank

* Currently being addressed under the state of Kentucky's Underground Storage Tank (UST) Program.

** These SWMUs are permitted under the state of Kentucky's Subtitle D Solid Waste Permit. Subtitle D contains provisions for groundwater monitoring and closure.

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Appendix III-C

**List of SWMUs which are being
regulated by the State's portion of the RCRA Permit**

<u>SWMU</u>	<u>PGDP Facility No.</u>	<u>SWMU Description</u>
3	C-404	Low-Level Radioactive Waste Burial Ground
25	C-750-C	1000-Gal. Waste Oil Tank
43	C-746-B	Waste Chemical Storage Area
44	C-733	Hazardous Waste Storage Area
45	C-746-R	Waste Solvent Storage Area
46A	C-746-Q	Hazardous and Low-Level Mixed Waste Storage Building
46	C-409	Hazardous Waste Pilot Plant
49	C-400-B	Waste Solution Storage Tank
50	C-400-C	Nickel Stripper Evaporation Tank
144	C-746-A	Hazardous and Mixed-Waste Storage Facility

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Appendix III-D

List of SWMUs associated with building structures. These units will be scheduled for an RI/FS during associated D&D activities.

<u>SWMU</u>	<u>DESCRIPTION</u>
55	C-405 Incinerator
70	C-333-A Vaporizer
71	C-337-A Vaporizer
98	C-400 Basement Sump
101	C-340 Hydraulic System
167	C-720 Whiteroom Sump
192	C-710 Acid Interceptor Pit
198	C-410-D Area Soil Contamination

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APPENDIX IV

LIST OF WAGs/Potential OUs

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APPENDIX IV

WAG 1				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
100	Fire Training Area	-	Common Geographic Location	- C-615 Sewage Plant (SWMU 38) removed per operating unit status. - KOW sites moved to WAG 10. - Moved SWMUs 94 & 95 to WAG 10.
136	C-740 TCE Spill Site	-		
WAG 2				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
86	C-631 Pumphouse and Cooling Tower	10	Operating Units Common Operational Processes Common Remedial Technologies Common Contaminant Types	- SWMU 4 moved to WAG 3 - WAG created for cooling towers. - Schedule for RI/FS after operations cease.
87	C-633 Pumphouse and Cooling Tower	5		
88	C-635 Pumphouse and Cooling Tower	11		
89	C-637 Pumphouse and Cooling Tower	8		
WAG 3				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
4	C-747 Contaminated Burial Ground	2	Common Remedial Technologies Common Geographic Location Common Release Mechanisms	- D2 RFI WP for WAGs 2, 3, & 14 reduced in scope. - D2 RFI WP date will be proposed in SMP.
5	C-746-F Classified Burial Ground	-		
6	C-747 Burial Area	-		
WAG 4				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
72	C-200 Underground Gasoline Tank	-	Common Contaminant Types Common Remedial Technologies Common Release Mechanisms	- Being addressed under the UST program.
73	C-710 Underground Gasoline Tank	-		
142	C-750-A 10,000 Gal. Gasoline UST	-		
143	C-750-B 10,000 Gal. Diesel UST	-		

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WAG 5				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
31	C-720 Compressor Pit Water Storage Tank	9	Common Release Mechanisms	<ul style="list-style-type: none">- Moved SWMU 87 to WAG 2.- Moved SWMU 99 to WAG 6.- Moved SWMUs 82 & 83 to WAG 8.- Moved SWMU 16 to WAG 14.- Moved SWMU 75 to WAG 19.
76	C-632-B Sulfuric Acid Storage Tank	-		
77	C-634-B Sulfuric Acid Storage Tank	10		
169	C-410-E HF Vent Surge Protection Tank	16		
WAG 6				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
11	C-400 Trichloroethylene Leak Site	-	Suspected Sources of <u>Off-site</u> Contamination Common Remedial Technologies Common Contaminant Types	<ul style="list-style-type: none">- DNAPL sites- Scope will include expanded PA/SI for the entire C-400 area.- Moved SWMU 47 to WAG 5.- Moved SWMU 78 to WAG 16.- Moved SWMU 98 to D&D WAG.
26	C-400 to C-404 Underground Transfer Line	14		
40	C-403 Neutralization Tank	-		
47	C-400 Technetium Storage Tank Area	-		
203	C-400 Sump	-		
WAG 7				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
8	C-746-K Inactive Sanitary Landfill	-	Suspected Sources of <u>Off-site</u> Contamination Common Geographic Location	<ul style="list-style-type: none">- KOW site (SWMU 157) moved to WAG 15.
130	C-611 550-Gal. Gasoline UST	-		
131	C-611 50-Gal. Gasoline UST	-		
132	C-611 2000-Gal. Oil UST	-		
133	C-611 Unknown Size, Grouted UST	-		
134	C-611 1000-Gal. Diesel/Gasoline Tank	-		

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WAG 8				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
82	C-531 Electric Switchyard	5	Operating Units Common Contaminant Types Common Remedial Technologies	- Schedule for RI/FS after operations cease. - Moved SWMU 89 to WAG 2. - Moved SWMU 71 to D&D WAG
83	C-533 Electric Switchyard	5		
84	C-535 Electrical Switchyard	-		
85	C-537 Electrical Switchyard	-		
WAG 9				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
27	C-722 Acid Neutralization Tank	-	Common Remedial Technologies Common Geographic Location Common Release Mechanisms	- Moved SWMU 31 to WAG 5. - Moved SWMU 97 to WAG 15.
28	C-712 Acid Neutralization Lagoon	15		
165	C-616-L Pipeline and Vault Soil Contamination	-		
170	C-729 Acetylene Building Drain Pits	-		
WAG 10				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
94	KOW Trickling Filter and Leach Field	1	Common Geographic Location Common Ownership	- Transfer to DOD - Moved SWMU 86 to WAG 2. - Moved SWMU 77 to WAG 5. - Moved SWMU 20 to WAG 11. - Moved SWMU 92 to WAG 19. - Moved SWMU 195 to WAG 20.
95	KOW Burn Area	1		
157	KOW Toluene Spill Area	7		
182	Western Portion of Yellow Water Line	-		

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WAG 11				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
19	C-410-B HF Neutralization Lagoon	-	Common Contaminant Types Common Remedial Technologies Common Geographic Location Common Operational Processes	- Moved SWMU 88 to WAG 2. - Moved SWMU 145 to WAG 21.
20	C-410-E Emergency Holding Pond	10		
41	C-410-C Neutralization Tank	-		
WAG 12				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
17	C-616-E Sludge Lagoon	-	Operating Units Common Contaminant Types Common Geographic Location Common Remedial Technologies	- Schedule for RI/FS when operations cease.
18	C-616-F Full Flow Lagoon	-		
42	C-616 Chromate Reduction Facility	-		
WAG 13				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
21	C-611-W Sludge Lagoon	-	Operating Units Common Contaminant Types Common Remedial Technologies Common Geographic Location	- Schedule for RI/FS when operations cease. - Moved SWMU 138 to WAG 21.
22	C-611-Y Overflow Lagoon	-		
23	C-611-V Lagoon	-		
185	C-611-4 Horseshoe Lagoon	-		
WAG 14				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
13	C-746-P Clean Scrapyard	24	Operating Units Common Contaminant Types Common Remedial Technologies	- Schedule of RI/FS when operations cease. - Moved SWMU 26 to WAG 6.
16	C-746-D Classified Scrapyard	5		

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WAG 15				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
24	C-750-D UST	9	Common Contaminant Types Common Remedial Technologies Common Release Mechanisms	- Moved SWMU 193 to WAG 28. - Moved SWMU 28 to WAG 9. - Moved SWMU 137 to WAG 16.
97	C-601 Diesel Spill	9		
139	C-746-A1 UST	15		
140	C-746-A2 UST	15		
WAG 16				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
78	C-420 PCB Spill Site	6	Common Contaminant Types Common Remedial Technologies Common Media Type Common Migration Pathway	- Split off from WAG 19. - Low-level PCB sites. - Runoff migrates to Big Bayou Creek. - Moved SWMU 169 to WAG 5.
137	C-746-A Inactive PCB Area	15		
153	C-331 PCB Soil Contamination (West)	19		
155	C-333 PCB Soil Contamination (West)	19		
156	C-310 PCB Soil Contamination (West Side)	19		
161	C-743-T01 Trailer Site (Soil Backfill)	19		
164	KPDES Outfall Ditch 017 (Soil Backfill)	19		
*WAG 17				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
93 103-129 146-152 175 184 197	Concrete Rubble Pile(s)	-	Suspected Sources of <u>Off-site</u> Contamination Common Contaminant Types Common Remedial Technologies	

- Only the concrete rubble piles will be investigated for AOCs 93, 105, 106, 107, 129, and 175. Soils and sediments associated with these particular AOCs will be investigated with WAGs 18 and 25.

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WAG 18				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
62	C-375-S6 Southwest Ditch (KPDES 009)	-	Operating Units Common Contaminant Types Common Remedial Technologies Hydraulically Connected Areas Common Migration Pathway	- Integrator Unit - Includes KPDES ditches that discharge to Big Bayou Creek. - Moved SWMUs 58, 59,60,61,66,67,& 171 to WAG 25.
63	C-375-W7 Oil Skimmer Ditch (KPDES 008)	-		
65	Big Bayou Creek	25		
68	C-375-W8 Effluent Ditch (KPDES 015)	-		
69	C-375-W9 Effluent Ditch (KPDES 001)	-		
199	Big Bayou Creek Monitoring Station	-		
WAG 19				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
75	C-633 PCB Spill Site	5	Common Contaminant Types Common Remedial Technologies	- Low-level PCB sites. - Runoff migrates to Big Bayou Creek. - Moved SWMUs 153,155,156,161, & 164 to WAG 16.
92	Fill area for dirt from the C-420 PCB Spill Site	10		
135	C-333 PCB Soil Contamination	-		
154	C-331 PCB Soil Contamination (Southeast)	-		
160	C-745 Cylinder Yard Spoils (PCB Soils)	-		
162	C-617-A Sanitary Water Line (Soil Backfill)	-		
163	C-304 Bldg/HVAC Piping System (Soil Backfill)	-		
WAG 20				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
166	C-100 Trailer Complex Soil Contamination	-	Common Contaminant Types Common Remedial Technologies	- Reserved for newly identified residual level RAD sites.
172	C-726 Sandblasting Facility	20		
195	Curlee Road Contaminated Soil Mounds	10		
200	Soil Contamination South of TSCA Waste Storage Facility	-		

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WAG 21				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
138	C-100 Southside Berm	13	Common Contaminant Types Common Remedial Technologies	- Reserved for heavy metal sites.
145	Residential/Inert Landfill Borrow Area	11		
158	Chilled-Water System Leak Site	-		
176	C-331 RCW Leak Northwest Side	-		
177	C-331 Leak East Side	-		
180	Outdoor Firing Range (WKWMA)	-		
181	Outdoor Firing Range (PGDP)	-		
WAG 22				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
2	C-749 Uranium Burial Ground	-	Suspected Sources of <u>Off-site</u> Contamination Common Contaminant Types Common Remedial Technologies Common Geographic Location Common Release Mechanisms	
3	C-404 Low-level Radioactive Waste Burial Ground	-		
7	C-747-A Burial Ground	-		
30	C-747-A Burn Area	-		
WAG 23				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
**1	C-747-C Oil Land Farm	-	Suspected Sources of <u>Off-site</u> Contamination Common Contaminant Types Common Remedial Technologies	- Moved SWMU 1 to WAG 27 also.
32	C-728 Clean Waste Oil Tank	-		
33	C-728 Motor Cleaning Facility	-		
56	C-540-A PCB Staging Area	-		
57	C-541-A PCB Waste Staging Area	-		
74	C-340 PCB Transformer Spill Site	-		
79	C-611 PCB Spill Site	-		
80	C-540-A PCB Spill Site	-		
81	C-541 PCB Spill Site	-		

**Investigation of SWMU 1 under WAG 23 will include PCB soils only.

WAG 24				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
12	C-747-A UF ₄ Drum Yard	-	Suspected Sources of <u>Off-Site</u> Contamination Common Contaminant Types Common Remedial Technologies Common Geographic Location Common Migration Pathways	- Closed scrapyards. - SWMU 12 should be removed from scope of WAG 22 SAP. - Moved SWMU 13 to WAG 14.
14	C-746-E Contaminated Scrapyard	-		
15	C-746-C Scrapyard	-		
WAG 25				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
58	N-S Diversion Ditch (Outside)	18	Operating Units Common Contaminant Types Common Remedial Technologies Hydraulically Connected Areas Common Migration Pathway	- Integrator Unit - Includes KPDES ditches that discharge to Little Bayou Creek. - Moved SWMU 65 to WAG 18.
59	N-S Diversion Ditch (Inside)	18		
60	C-375-E2 Effluent Ditch (KPDES 002)	18		
61	C-375-E5 Effluent Ditch (KPDES 013)	18		
64	Little Bayou Creek	-		
66	C-375-E3 Effluent Ditch (KPDES 010)	18		
67	C-375-4 Effluent Ditch (C-340 Ditch)	18		
168	KPDES Outfall Ditch 012	-		
171	C-617-A Lagoons	18		

***Investigation of SWMU 1 under WAG 27 will include investigation of all contaminated media except PCB-contaminated soils.

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WAG 26				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
201	Northwest Plume	-	Common Contaminant Types Common Remedial Technologies Common Media Type Hydraulically Connected	- Integrator Unit
202	Northeast Plume	-		
WAG 27				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
***1	C-747-C Oil Landfarm	23	Suspected sources of NW Plume Common Contaminant Types Common Remedial Technologies	- DNAPL sites - Scope will include expanded PA/SI on C-720 area.
91	UF ₆ Cylinder Drop Test Area	6		
196	C-746-A Septic System	15		
WAG 28				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
99	C-745 Kellogg Building Site	5	Suspected Sources of NE Plume Common Contaminant Types Common Remedial Technologies	- DNAPL sites - Scope will include expanded PA/SI on SWMUs 82, 83, 84, 85, and C-340 area.
183	McGraw UST			
193	McGraw Southside Cylinder Yards	15		
194	McGraw Construction Facility (South Side)	15		
204	Dykes Road Historical Staging Area			
WAG 29 (Postconstruction)				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
38	C-615 Sewage Treatment Plant			
102	Plant Storm Sewer			
159	C-746-H3 Storage Pad			
178	C-724-A Paint Spray Booth			
179	Plant Sewer System			

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WAG 30 (D&D)				
SWMU	Description	Previous WAG	Grouping Criteria	Comments
55	C-405 Incinerator	11		
70	C-333-A Vaporizer	16		
71	C-337-A Vaporizer	8		
98	C-400 Basement Sump	6		
101	C-340 Hydraulic System	5		
167	C-720 Whiteroom Sump	9		
192	C-710 Acid Interceptor Pit	15		
198	C-410-D Area Soil Contamination	20		

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APPENDIX V

LIST OF OUs IDENTIFIED TO DATE

APPENDIX V

OU SUMMARY					
	WAGs/Media	Response Type	ROD/Action Memorandum	Response Description	Status
1	Groundwater/WAG 26	Emergency removal action	N/A	Provided temporary water to local residences whose private wells are contaminated by TCE and Tc-99.	Complete
2	Groundwater/WAG 26	Removal action	August 30, 1994	Extended municipal water line to residents affected by off-site groundwater contamination.	Construction Complete/Operational
3	Groundwater/WAG 26 (Northwest Plume)	IRA	July 23, 1993	Hydraulic containment and treatment of high concentrations of off-site TCE contamination in the Northwest Plume.	Construction Complete/Operational
4	Groundwater/WAG 26 (Northeast Plume)	IRA	June 15, 1995	Hydraulic containment and treatment of high concentrations of off-site TCE contamination in the Northeast Plume.	Remedial Design Phase
5	WAG 25 (North-South Diversion Ditch)	IRA	March 28, 1994	Instituted action to treat certain plant effluent and control the migration of contaminated sediment associated with the N-S Diversion Ditch.	Construction Complete/Operational
6	WAGs 18 & 25 (Surface Water/Ditches)	IRA	N/A	Institutional controls (fencing/posting) for off-site contamination in surface water, outfalls, and lagoons.	Construction Complete/Operational
7	WAG 24 (Scrap Yards)	IRA	N/A	Installation of sediment controls to mitigate surface water/sediment runoff from scrapyards.	Construction Complete/Operational
8	WAG 22 (SWMU 2--Burial Ground)	IRA	September 11, 1995	Installation of an impermeable cap to reduce leachate migration from surface infiltration.	Remedial Design Phase
9	C-750-A, -B, and -C Underground Storage Tanks	N/A	N/A	Tank removal	Complete
10	WAG 7 (C-746-K Landfill)	IRA	N/A	Enhanced existing cap to reduce leachate migration from surface infiltration.	Complete
11	AOC 124 WAG 17 (Concrete Rubble Piles)	Removal Action	N/A	Excavated soil associated with AOC 124	Complete

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APPENDIX VI
RI GUIDELINES

1. RI GUIDELINES

1.1 INTRODUCTION

The current site remediation strategy is to cut off sources, treat hot spots as they are discovered, and defer final plume management or remediation pending source characterization and/or remediation. This appendix clarifies site characterization guidelines to assure that characterization and remediation are conducted in a technically sound and cost-effective manner.

Previously, the need to address immediate threats of off-site contamination placed remedial investigations at sources lower in priority than plume delineation. Currently, however, program focus shifts to source characterization and remediation. Cutting off contaminant sources prevents them from continually feeding releases and makes the effect of the release transient. Treating hot spots as they are discovered allows time for well conceived final actions based on realistic risk-benefit analyses.

1.2 SCOPE AND OBJECTIVES

The FFA requires PGDP to identify, investigate, and remediate all AOCs and SWMUs that could potentially pose a threat to human health and the environment. The purpose of a remedial investigation is to assess the magnitude and extent of contamination, evaluate whether remediation is necessary, and begin the remedial selection process. Major aspects addressed are the soil, sediment, surface water and groundwater exposure risk. Specific objectives include the following:

- * Characterize and define the boundaries of the source zone (i.e., SWMU, DNAPL).
- * Define the nature, extent (vertical and lateral), and magnitude of contamination in soils.
- * Identify hot spots of groundwater and surface water/sediment contamination originating from the source zone.
- * Identify migration trends of groundwater contamination to determine if groundwater releases will be captured by existing remediation systems.
- * Provide sufficient information to support a final RI and BRA for groundwater and surface water.
- * Gather adequate data to analyze contaminant transport mechanisms and support FSs.

1.2.1 Definition of Source

The strategy considers source characterization and remediation in the broader perspective of source zones. Sources are surface or near-surface causes of groundwater, surface water, or soil contamination. Examples include buried solid wastes, sludges, or drums typical of landfills and burial areas, leaking lines and equipment, leach fields, leaking sumps, storage tanks, or lagoons. These are known as primary sources and RCRA and CERCLA refer to these as SWMUs or AOCs. Recently, DOE, EPA, and the state of Kentucky concluded that NAPLs present in the subsurface also constitute sources and are known as secondary sources. A source zone is the geographical area that includes both primary and secondary source material. Consequently, source zones are typically larger than conventional boundaries associated with a SWMU as illustrated in Figure VI.1. Figure VI.2 shows three simple local source scenarios.

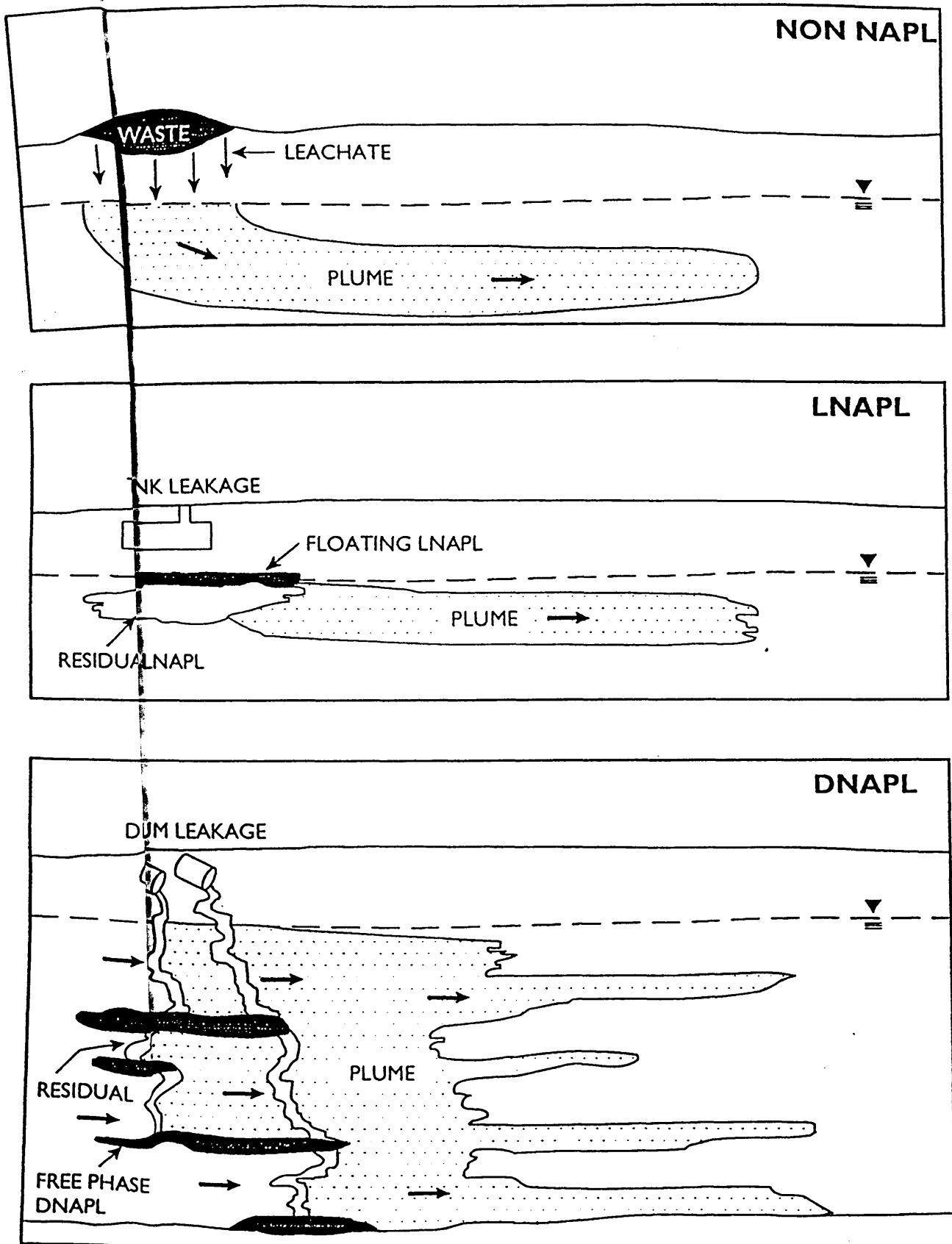


Figure VI.1. Simple local source scenarios.

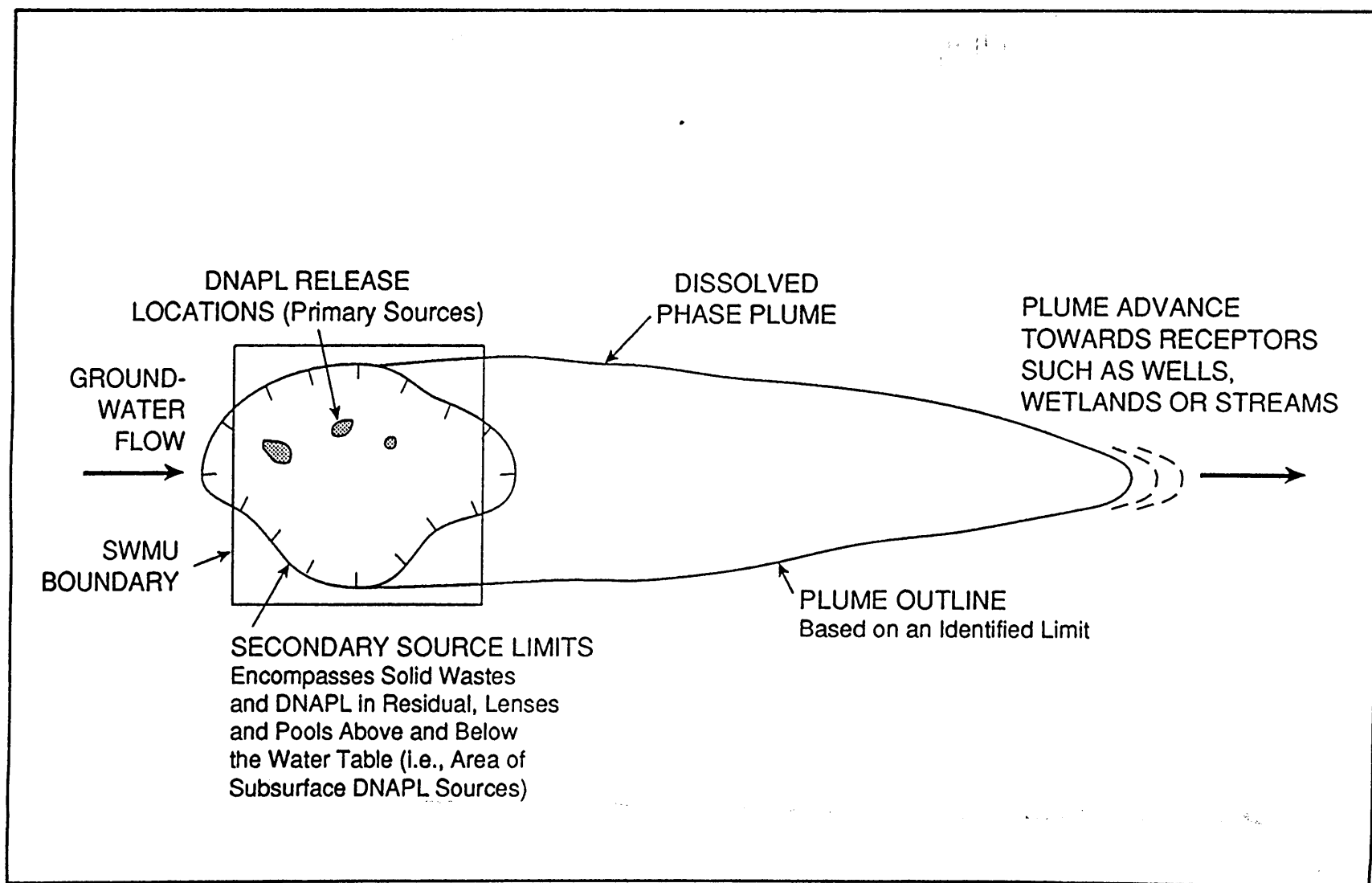


Figure VI.2. Anatomy of a complex source. This complex source consists of both solid and liquid wastes. DNAPL has migrated laterally beyond the conventional SWMU boundary. The hatched area defines the limit of the secondary source.

1.2.2 Determining Nature and Extent of Contamination

Releases are original source material distributed along migration pathways. Flowing surface water and groundwater results in soil, sediment, and water contamination. Data gathered during the RI should be adequate to describe the site geology, hydrology, and hydrogeology, with emphasis on identifying the vertical and horizontal contaminant distribution in soil and sediment along these migration pathways in the Upper Continental Recharge System (UCRS), the RGA, and in some cases, the McNairy Formation.

To determine the vertical extent for releases, investigators should assume that maximum depth of contamination occurs under a DNAPL scenario. Unless free DNAPL is recovered, maximum DNAPL penetration can be estimated by sampling groundwater at increasing depths near or just downgradient of DNAPL entry zones. Vertical extent of contamination is defined as the depth in the subsurface below which the contaminant levels are low enough to be protective of remediation goals at the POC.

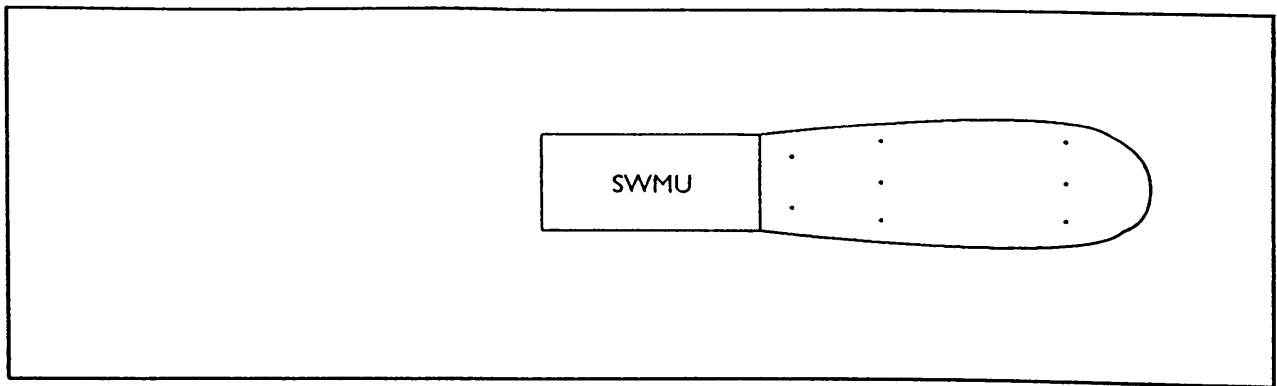
Determining the horizontal extent of contamination involves characterizing both the UCRS and the RGA. In general, UCRS flow is directed downward. A horizontal flow component exists and is most pronounced within manmade and natural permeability pathways. To determine horizontal extent with the UCRS, sampling should be conducted downgradient (vertically and horizontally) along permeability pathways (see Figure VI.3).

Determining the horizontal extent of migration in the RGA is conducted for the following three reasons:

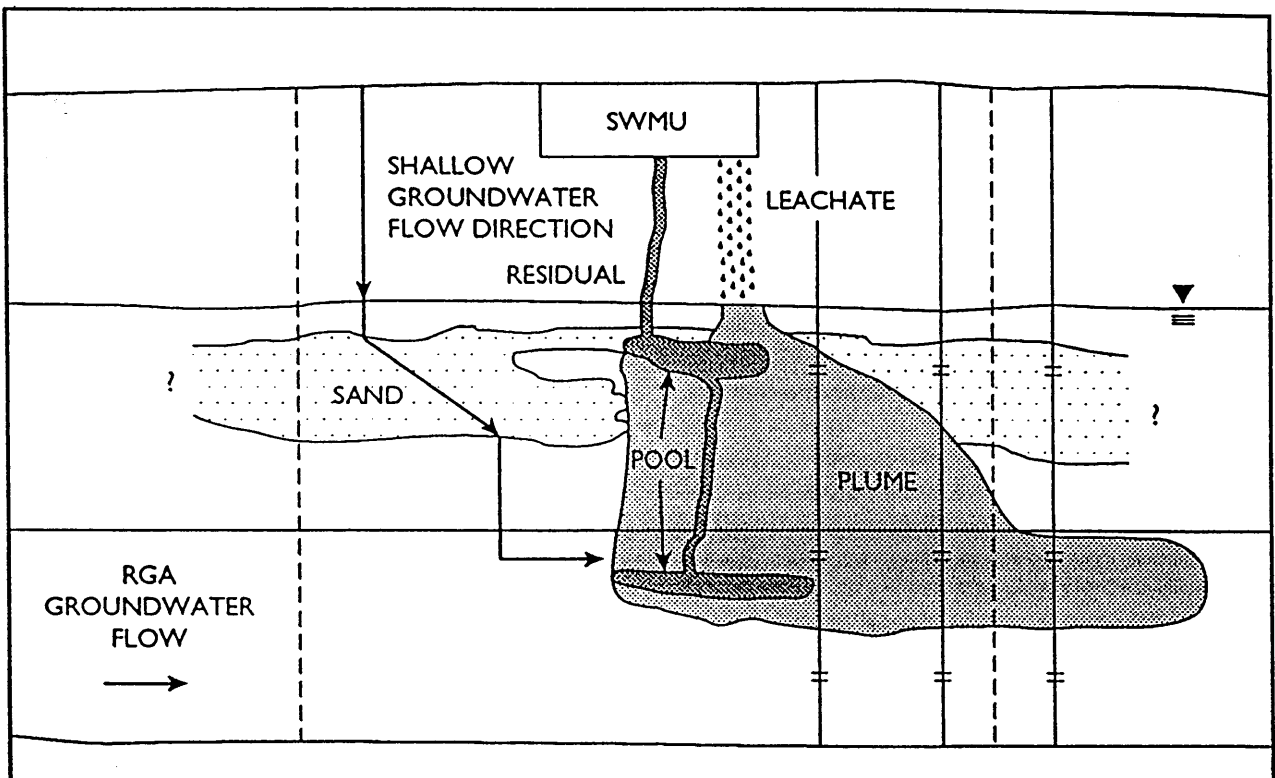
- * to determine if the release is commingled with releases from other sources,
- * to determine if the release is being treated by an ongoing interim action, and
- * to support the final RI for the groundwater OU.

There is no specified distance necessary for determining horizontal extent of contamination within the RGA. Sampling downgradient of the source should be conducted at a distance necessary to determine maximum contaminant levels (MCLs), the directional trend of the release, and if there are any commingled releases from other sources. This determination is left to the best judgement of the investigators and will require interpolating field results.

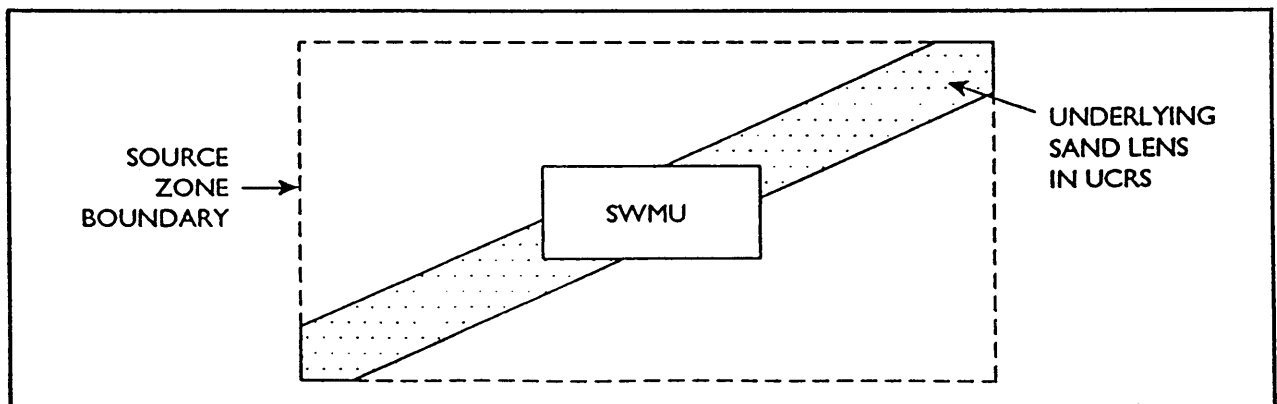
Detection of a hot spot triggers consideration of an early action for the groundwater OU (see Section 1.2.3). If the trend of any release, including a hot spot, indicates the release is being treated by an ongoing interim action, then a final action decision is deferred pending completion of the RI for the groundwater OU. If any release is found to be commingled with other releases, remedial decision at the source should also include any other contributing sources to the release. Where applicable, investigators should conduct pathway analyses using analytical or numerical models to supplement sampling data to determine commingled releases and migration trends.



a. Plan view showing downgradient temporary locations.



b. Cross section showing release trend and temporary sample locations.



c. Plan view showing SWMU boundary, source zone boundary and underlying sand lens.

Figure VI.3.

1.2.3 Defining Hot Spots

Although final actions are deferred, detecting hot spots, or areas of high contaminant concentration, will trigger consideration of early action. Early actions on the groundwater OU are warranted based on the following criteria:

- * the hot spot is not contained by ongoing interim action,
- * the hot spot trends off-site,
- * an early action is protective of human health, and
- * early action provides cost advantages.

In general, the criteria for determining a hot spot will be defined during RI scoping using the data quality objective (DQO) process. However, from past precedence, a hot spot for TCE contamination is defined as TCE contamination greater than 1000 ppb. Additionally, a hot spot for Tc-99 is defined as Tc-99 concentrations greater than 3790 pCi/l.

1.2.4 Determining Release Trends

Determination of the trend of contamination in the RGA will support interim and final action decisions for the groundwater OU. In some cases, multiple sources may be contributing to commingled plumes. As discussed in Sections 1.2.2 and 1.2.3, if a release is commingled with releases from other sources, robust RAs addressing all contributing sources should be considered. This offers economy of scale when remediating sources and allows a more expedited path to finalizing the groundwater OU RI. Additionally, if a release is trending towards an existing interim action, no early action may be warranted for the release.

Within the UCRS, groundwater flow is directed downward but it does have a horizontal flow component. The horizontal extent of any UCRS release is defined by contaminant levels which are protective of risk goals in the RGA at the POC. RGA release trending should be supported by both downgradient sampling and analytical or numerical modeling where appropriate.

1.2.5 Groundwater Operable Unit Remedial Investigation

Final actions for the groundwater OU are deferred pending completion of the source unit characterization and the groundwater RI. The groundwater RI will be based on data gathered during the individual source unit RIs. Once sources contributing to groundwater plumes are addressed, final groundwater RAs will be resumed.

1.2.6 Dense Nonaqueous Phase Liquid

DNAPL-contaminated sites consist of three distinctions which are 1) a primary in which the release has taken place, 2) a secondary source through which the contaminant has migrated, leaving (a) a residual or pooled product or (b) a gas phase in the vadose zone, and 3) the dissolved phase plume (Figure VI.4). Figure VI.5 illustrates the different components of a DNAPL-contaminated site.

DNAPLs present dilemmas for decision makers. DNAPL solubilities are low compared to many contaminants, and consequently persist as secondary sources for long periods. Conversely, compared to groundwater MCLs, DNAPL solubilities are high. For instance, the MCL for TCE is 5 ppb but its solubility

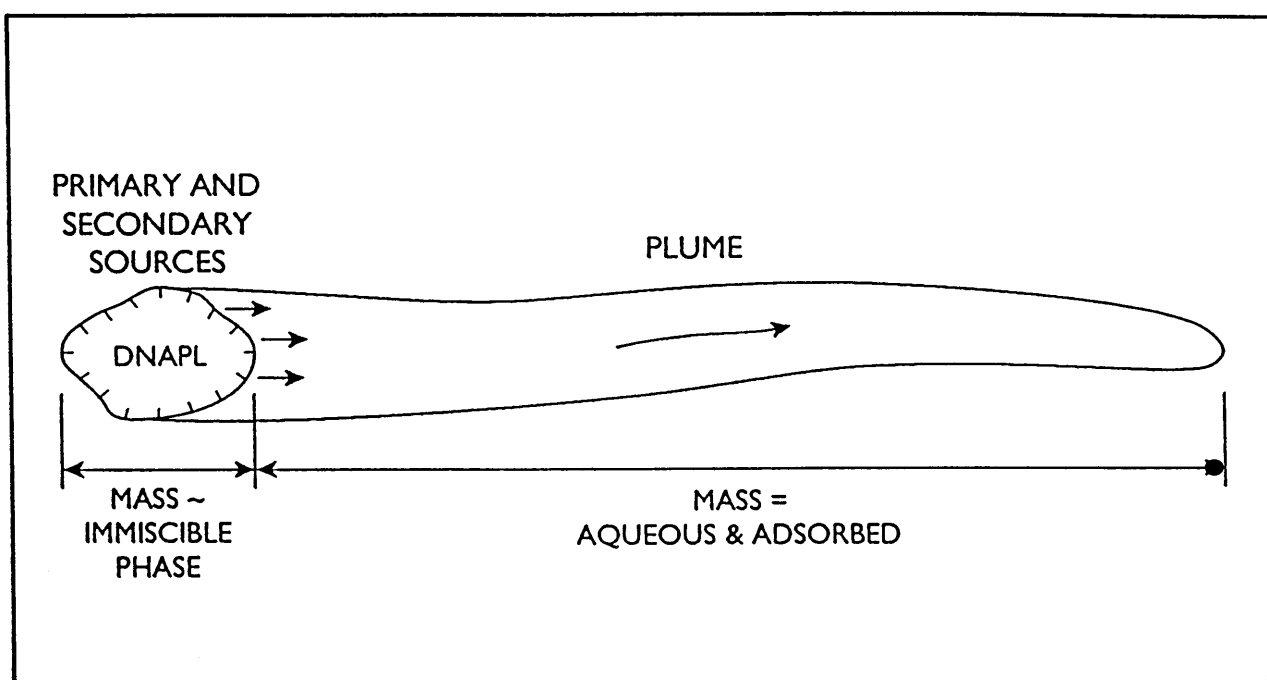
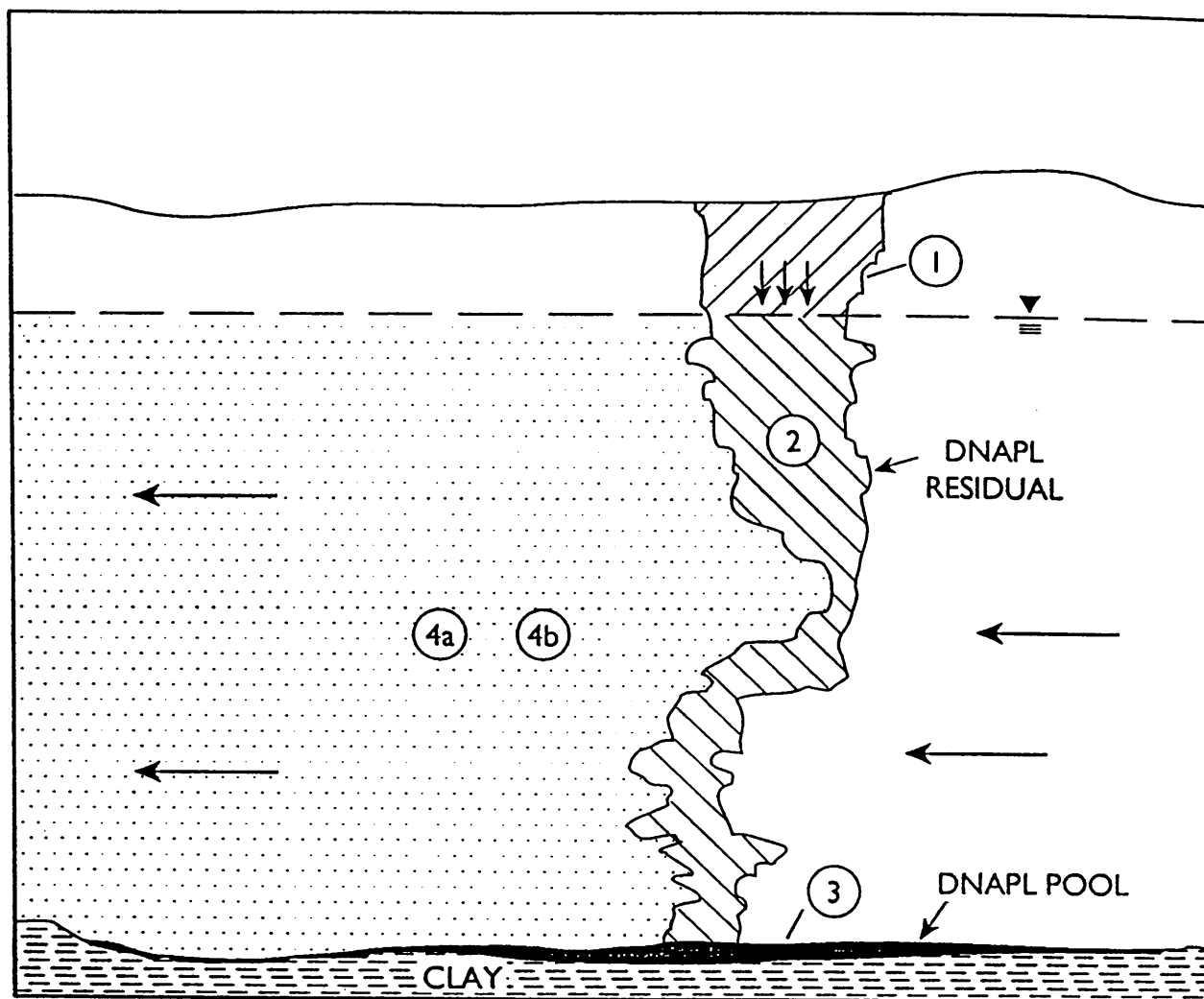


Figure VI.4. Plan view of secondary source and resulting dissolved phase plume.



DISTRIBUTION OF CONTAMINANT MASS

- ① RESIDUAL IN VADOSE ZONE
- ② RESIDUAL BELOW WATER TABLE
- ③ POOLS
- ④ PLUME (a) DISSOLVED MASS
(b) ADSORBED MASS

Figure VI.5. Components of a DNAPL site.

is 1,100,000 ppb; therefore, one gallon of TCE can contaminate 300 million gallons of water to 5 ppb. Based on experience from numerous sites, investigators now conclude that without addressing secondary sources, remediation of dissolved phase plumes is unlikely within a reasonable planning period. However, once secondary sources are addressed, the effect of the dissolved phase plume becomes transient.

Because TCE and PCBs were used extensively at PGDP, site investigators should pay careful attention to RI design. Site investigators will use criteria included in EPA publication 9355.4-07FS, "Estimating Potential for Occurrence of DNAPL at Superfund Sites," to determine the likelihood of DNAPL contamination and the implications on site assessment. Where plumes are found to be caused by DNAPL sources, unless a hot spot exists warranting an early action, remedial decisions on the groundwater plumes are deferred pending a final action decision at the source.

1.3 REMEDIAL INVESTIGATION DESIGN AND IMPLEMENTATION

Characterization at ER sites can often be a lengthy and costly process. A streamlined approach known as an expedited site characterization has been used to address the technical and institutional problems of site characterization but does not sacrifice scientific rigor. This process revolves around a multidisciplinary team approach to problem solving and uses a variety of nonintrusive and minimally intrusive technologies. However, no one technology or suite of technologies constitutes an expedited site characterization. If properly conducted, an expedited site characterization could be completed in a fraction of the time and cost of a conventional site characterization.

The technical team works together throughout the process, from planning the investigation to field implementation and report writing.

Field implementation relies heavily on rapid, minimally intrusive sampling and investigative techniques and avoids "plume chasing" with conventional monitoring wells. Because of their high cost, characterization with monitoring wells is often inadequate and unnecessary. Time-series data, while important for long-term performance monitoring, are often unnecessary for site characterization where a detailed snapshot of the contamination may be sufficient.

1.3.1 Scoping the RI

Scoping is the initial planning phase for site remediation. Investigators will follow these guidelines during RI work plan development.

- * Assemble a project planning and implementation team to include at a minimum, the RI Project Manager, the PGDP project hydrogeologist, a senior technical advisor from the LMES Groundwater Program, the site Groundwater Program Manager plus others (Program Engineering, sampling team representatives, etc.).
- * Conduct a critical review and interpretation of existing data to determine which data is technically valid and can be used to design the field program. The following information sources should be utilized:

- PGDP Environmental Information Management System
 - Past investigation reports and conclusions
 - Outside and inside published literature
 - Local and regional mapping
 - Plant monitoring data
 - Other pertinent plant reports, interviews, and databases
- * Develop a conceptual model (or refine an existing conceptual model). The conceptual model is a concept of a process or problem expressed in the form of diagrams and/or schematic representations. This conceptual model should not only address potential contaminants and pathways, but also the basic understanding of the site hydrogeology.
- * Using EPA's DQO process (involving key members of the project team):
- clarify the problem to be resolved,
 - identify decisions to be made,
 - identify inputs to the decision (data needs),
 - define study boundaries,
 - develop decision rules (when are the data adequate), and
 - specify limits on uncertainty.
- * The team selects a suite of technologies appropriate to the problem and completes design of the field program. No one technique works well at all sites and a suite of techniques is necessary to best characterize a site. Nonintrusive and minimally intrusive technologies are emphasized in the program. In no case is the traditional approach of installing a massive number of monitoring wells to be followed. Rather, permanent monitoring wells are only installed when long-term performance monitoring is necessary.
- * A dynamic work plan that outlines the RI field program is prepared for the regulatory agencies. The work plan is considered dynamic because it is viewed as a guide, subject to modification, rather than a document that is absolute and unchangeable. The Health and Safety Plan and the QA/QC Plan must be broad and encompass possible alterations to the plan. The participation of the regulatory agencies is essential in successful implementation of the program. The RI Work Plan is integrated with the FS Work Plan.
- * The RI team will develop an investigation contingency plan to accompany the dynamic work plan, outlining what-ifs and alternate approaches to achieve DQOs or to resolve next acceptable levels of data quality.
- * A project review, postmortem, and feedback process will be incorporated into the work plan, such that lessons learned can be applied to the next work plan.

1.3.2 Implementing the Remedial Investigation

During the RI, the Sampling and Analysis Plan developed during project scoping is implemented and field data is collected and analyzed to determine to what extent a site poses a risk to human health and the environment. The key to the RI is collecting sufficient data to allow remedial decisions to be made.

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- * The entire team participates in the technical field program.
- * Use expedited site characterization concepts:
 - Cone Penetrometer (sampling of soils, groundwater, soil gas)
 - GeoProbe
 - Borehole and surface geophysics
 - HydroPunch groundwater sampling
 - Flow meters in existing wells
 - Field gas chromatograph (GC) or GC/mass spectrometer (MS)
 - Field screening kits
 - Computer integration of data in the field
- * When nearby well control is unavailable, use a minimum of hollow stem auger (HSA) holes or equivalent intrusive method to:
 - establish the detailed lithologies of the site,
 - allow for calibration of the cone penetrometer, and
 - obtain geophysical measurements to facilitate interpretation of surface geophysical methods (seismic and time domain electromagnetic surveys).

Some HSAs can be used with HydroPunch or other discrete level sampling tools to obtain soil and groundwater samples.

- * Rely on field screening data (field GC and other techniques) to allow for real-time data reduction and interpretation. Data generated during the investigation is reduced and interpreted each day by the technical staff, using computer programs as tools to integrate and visualize the data.
- * Based on the daily data review, the next day's program may be modified to optimize the investigation (flexibility).

In summary, this is an integration of the Expedited Site Characterization and observational approach methodologies. This method requires absolute buy-in of the regulatory agencies and DOE but should lead to the most effective form of RI and the shortest period of project accomplishment.

VII-1

APPENDIX VII
KEY SCHEDULE ASSUMPTIONS

Key Schedule Assumptions

ACTIVITY ID.	ACTIVITY DESCRIPTION	COMMENT
0000	WAG X	Duration to complete the remediation action process is 3289 days.
D699	EPA/KDEP approval final RI/FS Work Plan	Kick off all RI field activities.
E000	WAG X RI field investigation	Based upon the approved RI Work Plan for WAGs 1&7, 814 days.
E010	RI field procurement	Kicks off from final RI/FS Work Plan approval.
E635	Issue PCSR to EPA/KDEP	Kicks off RI Report.
F400	RI report writing	Kicks off from Issuance of PCSR to EPA/KDEP.
F799	Issue draft RI Report to EPA/KDEP for review	Will be issued 753 days after the approved RI/FS Work Plan - Duration based on the approved RI/FS for WAGs 1&7.
J369	Resolution of DOE internal comments on the draft FS Report	Kicks off Proposed Plan development.
J399	Issuance of draft FS/EA Report to EPA/KDEP	Issued to EPA/KDEP 90 days after issuance of the final RI Report.
		The 90-day duration after issuance of the final RI Report allows DOE to utilize the risk assessment information to complete the detailed evaluation of alternatives.
		The 90-day duration to submit the FS Report is contingent upon completion of the necessary treatability studies and will be evaluated on a case-by-case basis.
L200	Proposed Plan development	Kicks off from resolution of comments on the DOE internal review of the FS Report.
L399	Issue draft Proposed Plan to EPA/KDEP	Will be issued 30 days after issuance of the final FS/EA Report to EPA/KDEP.
L790	Close of Public Comment Period	Draft ROD will be issued 30 days after close of public comment period on the Proposed Plan (ASSUMES COMMENTS DO NOT CHANGE ALTERNATIVE SELECTION).
N200	ROD development	Kicks off after DOE receipt of EPA/KDEP comments on the draft FS Report.
N399	Issuance of draft ROD to EPA/KDEP	Will be issued 30 days after the close of public comment period on the Proposed Plan.
N699	ROD signature	Kicks off the 15-month period within which RA construction must commence.

Key Schedule Assumptions (continued)

ACTIVITY ID.	ACTIVITY DESCRIPTION	COMMENT
R300	Prepare Remedial Design	Kicks off from the issuance of the ROD signature.
		Baseline duration for Remedial Design (up to 90 percent issue) is 248 days.
R399	Issue RD Report to EPA/KDEP	The Remedial Design Report will consist of 90 percent design and will be considered the draft RD Report.
R599	Issue final RD Report CFC	Kicks off RA Bid & Award process.
V005	RA (Bid & Award)	Kicks off from the issuance of CFC Design.
		Bid & Award to be completed within 120 days of start.
V100	RA--Construction	Baseline duration of 18 months.
W300	Prepare RA Report	Preparation begins 60 days before the close of construction.
Z999	Project complete	

				Fiscal Years									
tivity	Description	Start	Finish	Dur	2000	2001	2002	2003	2004	2005	2006	2007	2008
					Time now								
XX410000	MAG X	01JAN00	20NOV08	3247									
XX410000	RI/FS WORK PLAN	01JAN00	20JUL01	567									
XX410001	RI/FS WORK PLAN	01JAN00	05NOV00	310									
XX410100	CONTRACTING	01JAN00	02MAR00	62									
XX410200	HISTORIC DATA REVIEW	03MAR00	11APR00	40									
XX410225	SCOPING DOCUMENT	12APR00	05JUL00	85									
XX410250	PREPARE RI/FS SCOPING DOCUMENT	12APR00	27APR00	16									
XX410260	ISSUE RI/FS SCOPING DOCUMENT TO DOE (D0)		27APR00	0									
XX410270	DOCUMENT TRANSMITTAL	28APR00	03MAY00	6									
XX410280	INTERNAL SCOPING MEETING	04MAY00	04MAY00	1									
XX410290	REVISE RI/FS SCOPING DOCUMENT	05MAY00	10MAY00	6									
XX410302	RI/FS SCOPING DOCUMENT-RELEASE PREPARATION	11MAY00	24MAY00	14									
XX410305	TRANSMITTAL OF DOCUMENT	25MAY00	04JUN00	11									
XX410307	ISSUE SCOPING DOCUMENT TO EPA/KDEP (D1)		04JUN00	0									
XX410308	RI/FS SCOPING MEETING	05JUL00	05JUL00	1									
XX410309	PREPARE RI/FS WORK PLAN	06JUL00	03NOV00	86									
XX410310	PREPARE DRAFT RI/FS WORK PLAN	06JUL00	12SEP00	69									
XX410312	ISSUE RI/FS WORK PLAN FOR INTERNAL REVIEW		12SEP00	0									
XX410315	INTERNAL REVIEW	13SEP00	07OCT00	25									
XX410320	INCORPORATE COMMENTS	08OCT00	05NOV00	29									
XX410329	ISSUE DRAFT RI/FS WORK PLAN TO ERD/DOE (D0)		05NOV00	0									
XX410330	TECHNICAL/PEER REVIEW	06NOV00	21NOV00	16									
XX410340	DOE/ORD REVIEW	14NOV00	05DEC00	22									
XX410350	DOE/HQ REVIEW	06NOV00	05DEC00	30									
XX410360	CONSOLIDATION & RESOLUTION OF COMMENTS	06DEC00	11DEC00	6									
XX410369	COMMENTS RESOLVED		11DEC00	0									
XX410370	INCORPORATE COMMENTS	12DEC00	05JAN01	25									
XX410380	RELEASE PREPARATION	06JAN01	17JAN01	12									
XX410390	TRANSMITTAL OF DOCUMENT	18JAN01	22JAN01	5									
XX410399	ISSUE DRAFT RI/FS WORK PLAN TO EPA/KDEP (D1)		22JAN01	0									
XX410400	EPA/KDEP REVIEW DRAFT RI/FS WORK PLAN	23JAN01	27APR01	95									
XX410499	RECEIPT OF EPA/KDEP COMMENTS		27APR01	0									
XX410500	INCORPORATE EPA/KDEP COMMENTS	28APR01	20JUN01	54									
XX410599	ISSUE FINAL RI/FS WORK PLAN TO EPA/KDEP (D2)		20JUN01	0									
XX410600	EPA/KDEP REVIEW FINAL RI/FS WORK PLAN	21JUN01	20JUL01	30									
XX410699	EPA/KDEP APPROVAL OF FINAL RI/FS WORK PLAN		20JUL01	0									
XX41E000	REMEDIAL INVESTIGATION FIELD ACTIVITIES	21JUL01	20JUL02	365									

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GENERIC WASTE AREA GROUP SCHEDULE DETAIL - LONG-TERM PLANNING

Legend
 ■ = Progress/Complete
 □ = Planned
 ▨ = Critical
 Sort Key: c2, 10

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Activity	Description	Start	Finish	Dur	2000	2001	2002	2003	2004	2005	2006	2007	2008
					Time Now								
XX41E001	REMEDIAL INVESTIGATION FIELD ACTIVITIES	21JUL01	29AUG02	405			██████████						
	PHASE 1												
XX41E010	MMES PROCUREMENT	21JUL01	17NOV01	120			███						
XX41E019	NOTICE TO PROCEED		17NOV01	0			▲						
XX41E100	MOBILIZATION	18NOV01	16JAN02	60			██						
XX41E299	REMEDIAL INVESTIGATION IMPLEMENTATION	17JAN02	29AUG02	225			██████						
XX41E300	FIELD ACTIVITIES	17JAN02	27JUL02	192			██████						
XX41E400	WASTE HANDLING/DISPOSAL	17JAN02	29AUG02	225			██████						
XX41E500	LAB ANALYSIS	25JAN02	29AUG02	217			██████						
XX41E599	DATA MANAGEMENT	17JAN02	29AUG02	225			██████						
XX41E600	DATA COLLECTION/FILING	17JAN02	29AUG02	225			██████						
XX41E610	DATA VALIDATION	16FEB02	21AUG02	187			████						
XX41E620	DATA EVALUATION	17JAN02	29AUG02	225			██████						
XX41E920	PROJECT MANAGEMENT/ADMINISTRATIVE SUPPORT	21JUL01	20JUL02	365			██████						
XX41E930	QUALITY ASSURANCE	21JUL01	20JUL02	365			██████						
XX41F000	REMEDIAL INVESTIGATION REPORT	30AUG02	14DEC03	472				██████████					
XX41F001	PREPARE DRAFT REMEDIAL INVESTIGATION REPORT	30AUG02	05APR03	219				████					
XX41F300	REMEDIAL INVESTIGATION DOCUMENT PREPARATION	30AUG02	17JUN03	292				████████					
XX41F400	REMEDIAL INVESTIGATION REPORT WRITING	30AUG02	25FEB03	180				████					
XX41F500	RISK ASSESSMENT	29SEP02	26JAN03	120				███					
XX41F599	ALTERNATIVE DEVELOPMENTS	29SEP02	26JAN03	120				███					
XX41F600	INTERNAL REVIEW	27JAN03	09FEB03	14				█					
XX41F699	COMMENT REVISION	10FEB03	26MAR03	45				█					
XX41F700	REMEDIAL INVESTIGATION REPORT REPRODUCTION	27MAR03	05APR03	10				█					
XX41F710	ISSUE DRAFT RI REPORT TO DOE (D0)		05APR03	0				▲					
XX41F720	DOE REVIEW DRAFT REMEDIAL INVESTIGATION REPORT	06APR03	05MAY03	30				█					
XX41F721	DOCUMENT REVISION	06MAY03	12JUN03	38				█					
XX41F730	CONSOLIDATION & RESOLUTION RI REPORT COMMENTS	06MAY03	09MAY03	4				█					
XX41F740	REMEDIAL INVESTIGATION REPORT COMMENTS RESOLVED		09MAY03	0				▲					
XX41F750	INCORPORATE REMEDIAL INVESTIGATION REPORT COMMENTS	10MAY03	31MAY03	22				█					
XX41F760	RELEASE PREPARATION	01JUN03	12JUN03	12				█					
XX41F770	TRANSMITTAL OF DOCUMENT	13JUN03	17JUN03	5				█					
XX41F799	ISSUE DRAFT RI RPT TO EPA/KDEP (D1)		17JUN03	0				▲					
XX41F800	EPA/KDEP REVIEW DRAFT REMEDIAL INVESTIGATION RPT	18JUN03	15SEP03	90				██					
XX41F899	RECEIPT OF EPA/KDEP COMMENTS		15SEP03	0				▲					

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GENERIC WASTE AREA GROUP SCHEDULE DETAIL - LONG-TERM PLANNING

Legend
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 □ = Planned
 ▢ = Critical
 Sort Key: c2, id

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					Time now								
XX41F900	INCORPORATE COMMENTS	16SEP03	14NOV03	60					□				
XX41F950	ISSUE FINAL RI RPT TO EPA/KDEP (D2)		14NOV03	0					△				
XX41F960	EPA/KDEP REVIEW FINAL REMEDIAL INVESTIGATION RPT	15NOV03	14DEC03	30					□				
XX41F990	FINAL REMEDIAL INVESTIGATION REPORT APPROVED		14DEC03	0					△				
XX41G000	TREATABILITY STUDY	30AUG02	29AUG03	365			▢▢▢						

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GENERIC WASTE AREA GROUP SCHEDULE DETAIL - LONG-TERM PLANNING

Legend
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 □ = Planned
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 Sort Key: c2, id

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Activity	Description	Start	Finish	Dur	2000	2001	2002	2003	2004	2005	2006	2007	2008
					Time now								
XX41J799	EPA/KDEP APPROVAL FINAL FEASIBILITY STUDY/EA RPT		10AUG04	0					Δ				
XX41L000	PROPOSED PLAN	31DEC03	10JAN05	377					▬				
XX41L200	PROPOSED PLAN SCOPING	31DEC03	04JAN04	5					▬				
XX41L300	PREPARE DRAFT PROPOSED PLAN	05JAN04	21MAR04	77					▬				
XX41L309	ISSUE PROPOSED PLAN FOR INTERNAL REVIEW		21MAR04	0					Δ				
XX41L310	INTERNAL REVIEW	22MAR04	06APR04	16					▬				
XX41L319	CONSOLIDATION & RESOLUTION INTERNAL COMMENTS	07APR04	12APR04	6					▬				
XX41L320	INCORPORATE COMMENTS	13APR04	28APR04	16					▬				
XX41L329	ISSUE DRAFT PROPOSED PLAN TO DOE (D0)		28APR04	0					Δ				
XX41L330	MMES REVIEW DRAFT PROPOSED PLAN	29APR04	31MAY04	33					▬				
XX41L340	EBASCO REVIEW DRAFT PROPOSED PLAN	29APR04	31MAY04	33					▬				
XX41L350	HK-F REVIEW DRAFT PROPOSED PLAN	29APR04	31MAY04	33					▬				
XX41L360	DOE REVIEW DRAFT PROPOSED PLAN	29APR04	31MAY04	33					▬				
XX41L361	DOCUMENT REVISION	01JUN04	11JUL04	41					▬				
XX41L370	CONSOLIDATION & RESOLUTION DRAFT PP COMMENTS	01JUN04	06JUN04	6					▬				
XX41L379	DRAFT PROPOSED PLAN COMMENTS RESOLVED		06JUN04	0					Δ				
XX41L380	INCORPORATE DRAFT PROPOSED PLAN COMMENTS	07JUN04	27JUN04	21					▬				
XX41L390	RELEASE PREPARATION	28JUN04	11JUL04	14					▬				
XX41L395	TRANSMITTAL OF DOCUMENT	12JUL04	18JUL04	7					▬				
XX41L399	ISSUE DRAFT PROPOSED PLAN TO EPA/KDEP (D1)		11AUG04	0					Δ				
XX41L400	EPA/KDEP REVIEW DRAFT PROPOSED PLAN	12AUG04	26SEP04	46					▬				
XX41L499	RECEIPT OF EPA/KDEP COMMENTS		26SEP04	0					Δ				
XX41L500	INCORPORATE COMMENTS	27SEP04	24OCT04	28					▬				
XX41L599	ISSUE FINAL PROPOSED PLAN TO EPA/KDEP (D2)		24OCT04	0					Δ				
XX41L600	EPA/KDEP REVIEW FINAL PROPOSED PLAN	25OCT04	22NOV04	29					▬				
XX41L699	EPA/KDEP APPROVE FINAL PROPOSED PLAN		22NOV04	0					Δ				
XX41L700	ISSUE FINAL PROPOSED PLAN TO PUBLIC		22NOV04	0					▬				
XX41L750	PUBLIC REVIEW OF FINAL PROPOSED PLAN	23NOV04	05JAN05	44					▬				
XX41L790	CLOSE OF PUBLIC COMMENT PERIOD		05JAN05	0					Δ				
XX41L799	PUBLIC HEARING	06JAN05	10JAN05	5					▬				
XX41N000	RECORD OF DECISION	23MAY04	18APR05	331					▬				
XX41N200	RECORD OF DECISION SCOPING	23MAY04	29MAY04	7					▬				
XX41N300	PREPARE DRAFT FINAL RECORD OF DECISION	30MAY04	07SEP04	101					▬				
XX41N309	ISSUE RECORD OF DECISION FOR INTERNAL REVIEW		07SEP04	0					Δ				
XX41N310	INTERNAL REVIEW	08SEP04	19SEP04	12					▬				
XX41N319	CONSOLIDATION & RESOLUTION INTERNAL COMMENTS	20SEP04	25SEP04	6					▬				

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GENERIC WASTE AREA GROUP SCHEDULE DETAIL - LONG-TERM PLANNING

Legend
 ■ = Progress/Complete
 □ = Planned
 ▨ = Critical
 Sort Key: c2, id

Activity	Description	Start	Finish	Dur	Fiscal Years									
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					Time now									
XX41N320	INCORPORATE COMMENTS	26SEP04	09OCT04	14						▨				
XX41N329	ISSUE DRAFT FINAL RECORD OF DECISION TO DOE (DO)		09OCT04	0						▨				
XX41N330	MMES REVIEW DRAFT FINAL RECORD OF DECISION	10OCT04	13DEC04	65						▨				
XX41N340	EBASCO REVIEW DRAFT FINAL RECORD OF DECISION	10OCT04	13DEC04	65						▨				
XX41N350	MK-F REVIEW DRAFT FINAL RECORD OF DECISION	10OCT04	13DEC04	65						▨				
XX41N360	DOE REVIEW DRAFT FINAL RECORD OF DECISION	10OCT04	13DEC04	65						▨				
XX41N361	DOCUMENT REVISION	14DEC04	26JAN05	44						▨				
XX41N370	CONSOLIDATION & RESOLUTION DRAFT FINAL ROD COMMENT	14DEC04	19DEC04	6						▨				
XX41N379	DRAFT FINAL RECORD OF DECISION COMMENTS RESOLVED		19DEC04	0						▨				
XX41N380	INCORPORATE DRAFT FINAL RECORD OF DECISION COMMENT	20DEC04	12JAN05	24						▨				
XX41N384	CLOSE OF PUBLIC COMMENTS ON PROPOSED PLAN		05JAN05	0						▨				
XX41N385	INCORPORATE PUBLIC COMMENTS	06JAN05	14JAN05	9						▨				
XX41N390	RELEASE PREPARATION	15JAN05	26JAN05	12						▨				
XX41N395	TRANSMITTAL OF DOCUMENT	27JAN05	31JAN05	5						▨				
XX41N399	ISSUE DRAFT FNL RECORD OF DECISION TO EPA/KDEP (D1)		04FEB05	0						▨				
XX41N400	EPA/KDEP REVIEW DRAFT FINAL RECORD OF DECISION	05FEB05	06MAR05	30						▨				
XX41N499	RECORD OF DECISION SIGNATURE	07MAR05	18APR05	30						▨				
XX41N699	ISSUE SIGNED RECORD OF DECISION TO EPA/KDEP		18APR05	0						▨				
XX41P000	RD SCOPING\SCHEDULE	23MAY04	19APR05	332					▨					
XX41R000	REMEDIAL DESIGN	19APR05	21MAR06	337						▨				
XX41R300	PREPARE REMEDIAL DESIGN	19APR05	22DEC05	248						▨				
XX41R329	ISSUE DRAFT-FINAL REMEDIAL DESIGN TO DOE (DO)		22DEC05	0						▨				
XX41R350	DOE REVIEW DRAFT-FINAL REMEDIAL DESIGN	23DEC05	21JAN06	30						▨				
XX41R351	DOCUMENT REVISION	22JAN06	26FEB06	36						▨				
XX41R360	CONSOLIDATION & RESOLUTION DRAFT-FINAL ROD COMMENTS	22JAN06	27JAN06	6						▨				
XX41R370	DRAFT-FINAL REMEDIAL DESIGN COMMENTS RESOLVED		27JAN06	0						▨				
XX41R380	INCORPORATE DRAFT-FINAL REMEDIAL DESIGN COMMENTS	28JAN06	26FEB06	30						▨				
XX41R399	ISSUE DRAFT-FINAL REMEDIAL DESIGN TO EPA/KDEP (D1)		22DEC05	0						▨				

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GENERIC WASTE AREA GROUP SCHEDULE DETAIL - LONG-TERM PLANNING

Legend
 ■ = Progress/Complete
 □ = Planned
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 Sort Key C2, id

Open Plan (B)					Fiscal Years								
Activity	Description	Start	Finish	Dur	2000	2001	2002	2003	2004	2005	2006	2007	2008
					Time now								
XX41R400	EPA/KDEP REVIEW DRAFT-FINAL REMEDIAL DESIGN	23DEC05	21JAN06	30							▢		
XX41R500	INCORPORATE EPA/KDEP COMMENTS	22JAN06	20FEB06	30							▢		
XX41R599	ISSUE FINAL CFC REMEDIAL DESIGN TO EPA/KDEP (02)		20FEB06	0							▢		
XX41R600	EPA/KDEP REVIEW CERTIFIED FOR CONSTRUCTION DESIGN	21FEB06	21MAR06	29							▢		
XX41R699	EPA/KDEP APPROVE CERTIFIED FOR CONSTRUCTION DESIGN		21MAR06	0							▢		
XX41T000	RA SCOPING\SCHEDULE	19APR05	21MAR06	337							▢		
XX41V000	REMEDIAL ACTION	21FEB06	15JAN08	694							▢	▢	
XX41V005	REMEDIAL ACTION - PROCUREMENT	21FEB06	20JUN06	120							▢		
XX41V040	REMEDIAL ACTION - MOBILIZATION	21JUN06	19JUL06	29							▢		
XX41V099	REMEDIAL ACTION START		19JUL06	0							▢		
XX41V100	REMEDIAL ACTION - CONSTRUCTION	20JUL06	15JAN08	545							▢		
XX41V101	REMEDIAL ACTION FINISH		15JAN08	0								▢	
XX41W200	POST CONSTRUCTION REPORT	17NOV07	20NOV08	370									▢
XX41W300	PREPARE POST CONSTRUCTION REPORT	17NOV07	15MAR08	120									▢
XX41W329	ISSUE DRAFT POST CONSTRUCTION REPORT TO DOE (00)		15MAR08	0									▢
XX41W350	DOE REVIEW DRAFT POST CONSTRUCTION REPORT	16MAR08	14APR08	30									▢
XX41W351	DOCUMENT REVISION	15APR08	19MAY08	35									▢
XX41W360	CONSOLIDATION & RESOLUTION DRAFT PC REPORT COMMENTS	15APR08	18APR08	4									▢
XX41W370	DRAFT POST CONSTRUCTION REPORT COMMENTS RESOLVED		18APR08	0									▢
XX41W380	INCORPORATE POST CONSTRUCTION REPORT COMMENTS	19APR08	07MAY08	19									▢
XX41W390	RELEASE PREPARATION	08MAY08	19MAY08	12									▢
XX41W395	TRANSMITTAL OF DOCUMENT	20MAY08	24MAY08	5									▢
XX41W399	ISSUE DRAFT POST CONSTRUCTION RPRT TO EPA/KDEP (01)		24MAY08	0									▢
XX41W400	EPA/KDEP REVIEW DRAFT POST CONSTRUCTION REPORT	25MAY08	25AUG08	93									▢
XX41W500	INCORPORATE EPA/KDEP COMMENTS	26AUG08	21OCT08	57									▢
XX41W599	ISSUE FNL POST CONSTRUCTION REPT TO EPA/KDEP (02)		21OCT08	0									▢
XX41W600	EPA/KDEP REVIEW FINAL POST CONSTRUCTION REPORT	22OCT08	20NOV08	30									▢
XX41W699	EPA/KDEP APPROVE FINAL POST CONSTRUCTION REPORT		20NOV08	0									▢
XX41Z999	PROJECT COMPLETE		20NOV08	0									▢

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APPENDIX VIII
ENFORCEABLE COMMITMENTS

FFA -- Appendix G
(Site Management Plan – Appendix VIII)
FY 2001
Enforceable Timetables and Deadlines

<u>Subproject</u>	<u>Deliverable</u>	<u>Submittal Date</u>
FFA	FFA Progress Report ²	10/30/00
GWOU ROD 3 (PTZ TS)	TS Field Mob ²	11/01/00
FFA	D1 Site Management Plan ¹	11/15/00
SWOU N/S Ditch	D1 Remedial Alternatives Analysis	12/04/00
GWOU ROD 1 (C-720)	D1 Proposed Plan ¹	12/18/00
SWOU Drum Mountain	D1 RA Report ¹	02/05/01
SWOU Scrap Metal	D1 Action Memo ¹	03/21/01 ³
SWOU N/S Ditch	D1 ROD ¹	03/28/01
FFA	FFA Progress Report ²	04/30/01
SWOU N/S Ditch	D1 RD/RA WP ⁴	04/30/01
D&D OU C-410 Facility	D1 EE/CA ¹	05/15/01
SWOU Scrap Metal	D1 RA WP ¹	05/30/01
GWOU ROD 1 (C-720)	D1 ROD ¹	06/21/01
CERCLA Waste Disposal Options	D1 FS Report ¹	06/25/01
SWOU N/S Ditch	ROD Signature ¹	06/26/01
SWOU Sediment Controls	D1 EE/CA ¹	06/30/01
SWOU N/S Ditch	RA Field Mob ¹	07/01/01
GWOU ROD 2 (C-400 TS)	TS Field Start ²	07/05/01
SWOU Scrap Metal	RA Field Mob ¹	08/29/01
D&D OU C-410 Facility	D1 Action Memo ¹	08/30/01
	D1 RA WP ¹	08/30/01
CERCLA Waste Disposal Options	D1 Proposed Plan ¹	09/08/01

¹ Denotes primary document/activity designated as an enforceable timetable and deadline under the FFA.

² Denotes a secondary document/activity.

³ Based on submittal of D2 EE/CA for Scrap Metal on 11/30/00.

⁴ The action for scrap metal and N/S Ditch will be implemented in a phased approach and may consist of multiple RA WPs and design packages that are submitted subsequent to the above milestones.

FFA -- Appendix G
(Site Management Plan – Appendix VIII)
FY 2002
Enforceable Timetables and Deadlines

<u>Subproject</u>	<u>Deliverable</u>	<u>Submittal Date</u>
GWOU ROD 1 (C-720)	ROD Signature	10/14/01
FFA	FFA Progress Report ²	10/30/01
D&D OU C-410 Facility	Action Memo Signature ¹	10/30/01
D&D OU C-410 Facility	SE Report ¹	10/31/01
SWOU Sediment Controls	D1 Action Memo ¹	11/04/01
FFA	D1 Site Management Plan ¹	11/15/01
GWOU ROD 1 (C-720)	D1 RD WP ¹	11/15/01
D&D OU C-410 Facility	RA Field Mob ¹	12/15/01
SWOU Sediment Controls	Action Memo Signature ¹	01/03/02
SWOU Sediment Controls	D1 RA WP ¹	02/15/02
GWOU ROD 1 (C-720)	D1 RD Report ¹	03/11/02
CERCLA Waste Disposal Options	D1 ROD ¹	03/17/02
GWOU ROD 1 (C-720)	D1 RA WP ¹	03/26/02
FFA	FFA Progress Report ²	04/30/02
CERCLA Waste Disposal Options	ROD Signature ¹	05/17/02
SWOU Sediment Controls	RA Field Mob ¹	05/31/02
SWOU Phase I Assessment	EE/CA ¹	06/10/02
GWOU Lasagna	D1 RA Report ¹	07/09/02
SWOU Sediment Controls	Complete Field Work ²	09/30/02
GWOU ROD 1 (C-720)	RA Field Mob ¹	09/30/02
SWOU N/S Ditch	Complete Field Work ²	09/30/02

¹Denotes primary document/activity designated as an enforceable timetable and deadline under the FFA.

²Denotes a secondary document/activity.

Revision date: September 29, 2000

IX-1

APPENDIX IX
LONG-TERM DATES

Site Priorities	Project	Long-Term Target Dates ¹			
		SE Report	RI/FS WP (D1)	ROD (D1)	Postconstruction Report (D1)
Immediate Risks	Provided water to residents	N/A	N/A	N/A	N/A
	Residential well sampling	N/A	N/A	N/A	N/A
Control "Hot Spots" Associated with Off-Site Contamination	Ditch 011/012 ICM	12/95	N/A	N/A	N/A
	NW Plume IRA #1	N/A	N/A	7/16/93	8/05/95
	NE Plume IRA #1	N/A	N/A	6/06/95	3/26/97
	N/S Diversion Ditch	N/A	N/A	3/15/94	11/15/95
	Institutional Controls--SW	N/A	N/A	N/A	N/A
	Sediment Controls--Scrapyards	N/A	N/A	N/A	N/A
Suspected Sources of Off-Site Contamination	WAG 22 (2&3)	N/A	9/1/95 (SAP)	11/25/98	11/13/01
	WAGs 1&7	N/A	9/10/92	04/08/97	04/03/98
	WAG 23	N/A	N/A	N/A	N/A
	WAG 22 (7&30)	N/A	3/30/95	2/7/99	1/27/02
	WAG 17	N/A	9/20/94 (D2)	10/29/97	N/A
	WAG 6	N/A	8/30/96 (D3)	2/8/00	11/20/02
	Lasagna	N/A	N/A	07/16/98	06/09/00
	WAG 27	N/A	11/15/96	8/3/00	5/15/03
	WAG 28	N/A	5/15/97	11/6/00	8/20/03
	WAG 3	N/A	11/15/97	8/9/01	5/22/04
	WAG 24	N/A	5/16/03	6/6/06	12/17/08
Suspected Sources of On-Site Contamination	WAG 15	1/30/97	N/A	N/A	N/A
	WAG 11	9/20/98	5/15/99 ²	N/A	N/A
	WAG 9	9/20/98	11/15/99 ²		
	WAG 19	1/15/99	5/15/00 ²	N/A	N/A
	WAG 16	7/18/99	11/15/00 ²	N/A	N/A
	WAG 8	1/16/00	5/15/01 ²	N/A	08/20/03
	WAG 21	7/18/00	11/15/01 ²	N/A	N/A
	WAG 20	1/15/01	5/15/02 ²	N/A	N/A
	WAG 13	7/18/01	11/15/02 ²	N/A	N/A
	WAG 2	1/15/02	5/15/03 ²	N/A	N/A
	WAG 12	7/18/02	11/15/03 ²	N/A	N/A
	WAG 14	1/15/03	5/15/04 ²	N/A	N/A
	WAG 5	7/18/03	11/15/04 ²	N/A	N/A
	WAG 29	1/16/04	5/15/05 ²	N/A	N/A
	WAG 30	7/18/04	11/15/05 ²	N/A	N/A
Integrator Units (GW/SW)	WAG 25	5/27/00	N/A ⁴	10/11/03	1/15/07
	WAG 18	8/13/04	N/A ⁴	11/27/07	3/11/10
	WAG 26	N/A	N/A ⁴	11/27/07	3/11/10

¹ The deliverables are based on the Kentucky Hazardous Waste Management Permit No. KY8-890-008-982.

² RI/FS WP will be developed contingent on need for further action as determined through the SE process.

³ RI/FS WP date for WAG 15 was accelerated to reflect the original RI/FS WP date for WAG 24.

⁴ RI/FS WP will be developed if additional data collection is needed.

11/04/97

Site Priorities	Project	FY 1997 ¹				
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Ongoing Activities
Immediate Risks	Provided water to residents					Ongoing
	Residential well sampling					Ongoing
Control "Hot Spots" Associated with Off-Site Contamination	NW Plume IRA #1	Annual Report (12/1)				O&M Activities
	NE Plume IRA #1	O&M Plan (12/25)	Postconstruction Report (3/26)			RA Activities
	N/S Diversion Ditch					S&M Activities
	Institutional Controls - SW					S&M Activities
	Sediment Controls - Scrapyards					S&M Activities
Suspected Sources of Off-Site Contamination	WAG 22 (2&3)		PCSR (2/19)			Meeting scheduled for 3/20/97 to confirm path forward
	WAGs 1&7	D3 Proposed Plan (11/15)		D1 ROD (4/8) D1 RD Rpt. (4/16)		Remedy Selection
	WAG 23 ³					
	WAG 22 (7&30)				D1 RI Report ² (7/28)	RI Activities
	WAG 17	D1 RI Report (11/9)		D1 Proposed Plan (4/30)		RI/FS Activities
	WAG 6	TSPP (11/26)				RI Activities
	Lasagna					
	WAG 27	RI/FS WP (11/15)				RI Activities
	WAG 28	RI/FS Scoping Document (12/20)		RI/FS WP (5/15)		RI/FS WP Development
	WAG 3		RI/FS Scoping Document (3/30)			RI/FS WP Development
	WAG 15	SE Report				
	Background Soils			D1 Background Soils Report (4/15)		
	WAGs 9&11		SE Work Plan (2/28)			

¹The deliverables are based on standard document turnaround times unless otherwise agreed to in the approved Work Plan. The Generic Schedule is used for those projects that have not gone through the DQO process. RODs will include an RD schedule for implementation to satisfy the RD WP, and RD Reports will include a construction schedule which will satisfy the RA WP.

²S&A Plan Approved (09/29/95)

³ Schedule on hold subject to agreement on cleanup standard between DOE, EPA, and KNREPC.

11/04/97

Site Priorities	Project	FY 1998 ¹				
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Ongoing Activities
Immediate Risks	Provided water to residents					Ongoing
	Residential well sampling					Ongoing
Control "Hot Spots" Associated with Off-Site Contamination	NW Plume IRA #1	Annual Report (12/1)		ROD Modification ²		O&M Activities
	NE Plume IRA #1		Annual Rpt. (3/31)			O&M Activities
	N/S Diversion Ditch					S&M Activities
	Institutional Controls - SW					S&M Activities
	Sediment Controls - Scrapyards					S&M Activities
Suspected Sources of Off-Site Contamination	WAG 22 (2&3)	D1 FS Rpt. (11/30)		D1 Proposed Plan (5/29)		Remedy Selection
	WAGs 1&7	DOE ROD Signature (12/31)		D1 Postconstruction Rpt. (6/15)		RD/RA and O&M Activities
	WAG 23 ³					
	WAG 22 (7&30)		D1 FS Rpt. (2/12)		D1 Proposed Plan (8/11)	Remedy Selection
	WAG 17	D1 ROD (10/29)	DOE ROD Signature (2/11)			Complete
	WAG 6			D1 RI Rpt. (7/16)		RI Activities
	Lasagna		D1 Proposed Plan (1/11)		D1 ROD (7/16)	RD/RA Activities
	WAG 27					RI Activities
	WAG 28					RI Activities
	WAG 3	D1 RI/FS WP (11/15)				RI/FS WP Development
	WAGs 9&11				SE Rpt. (9/20)	
	WAGs 16&19			SE WP ⁴ (4/19)		
	Miscellaneous	Data Mgmt Plan (TBD)	Comm Relations Plan (TBD)			

¹The deliverables are based on standard document turnaround times unless otherwise agreed to in the approved Work Plan. The Generic Schedule is used for those projects that have not gone through the DQO process. RODs will include an RD schedule for implementation to satisfy the RD WP, and RD Reports will include a construction schedule which will satisfy the RA WP.

²ROD Modification is intended to address continued operation of NW IRA.

³Schedule on hold subject to agreement on clean-up standard between DOE and KNRPC.

⁴RI/FS WP will be developed contingent on need for further action as determined through the Site Evaluation process in FY 97.

⁵Second

11/04/97

Site Priorities	Project	1997				
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Ongoing Activities
Immediate Risks	Provided water to residents					Ongoing
	Residential well sampling					Ongoing
Control "Hot Spots" Associated with Off-Site Contamination	NW Plume IRA #1					O&M Activities
	NE Plume IRA #1					O&M Activities
	N/S Diversion Ditch					S&M Activities
	Institutional Controls - SW					S&M Activities
	Sediment Controls - Scrapyards					S&M Activities
Suspected Sources of Off-Site Contamination	WAG 22 (2&3)	D1 ROD (11/25)	DOE ROD Signature (3/9)			RD/RA Activities
	WAGs 1&7					S&M Activities
	WAG 23 ²					
	WAG 22 (7&30)		D1 ROD (2/7)	DOE ROD Signature (5/23)		RD/RA Activities
	WAG 6		D1 FS Report (2/13)		Proposed Plan (8/12)	Remedy Selection
	Lasagna	DOE ROD Signature (10/29)			D1 RD Rpt. (8/3)	RD/RA Activities
	WAG 27		D1 RI Rpt. (1/3)		D1 FS Rpt. (8/3)	Remedy Selection
	WAG 28			RI Report (4/16)		RI/FS Activities
	WAG 3					RI Activities
	WAG 24 ³					
	WAG 11			RI/FS WP (5/15)*		
	WAG 9					
	WAGs 16&19		SE Rpt. (1/15)			

¹The deliverables included are based on full compliance funding and standard document turnaround times. The Generic Schedule is used for those projects that have not gone through the DQO process.

²Schedule on hold subject to agreement on clean-up standard between DOE and KNREPC.

³Work plan development deferred until scrap removal.

*RI/FS Work Plan will be developed contingent on need for further action as determined through the SE process.

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Site Priorities	Project	Long-Term Commitments, Comprehensive Site Operable Units*			
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4
Surface Water Integrator Units	WAG 25	DI ROD (10/11/03)	Postconstruction Rpt. (01/15/07)	--	--
	WAG 18	D1 ROD 11/27/07	Postconstruction Rpt. 03/11/10	--	--
Groundwater Integrator Unit	WAG 26	D1 ROD 11/27/07	Postconstruction Rpt. 03/11/10	--	--

* The deliverables are based on the Kentucky Hazardous Waste Management Permit No. KY8-890-008-982.

11/04/97

Distribution List

<u>Manual Holder</u>	<u>Location</u>	<u>Manual No.</u>
Paducah Public Library	Paducah	1
DOE Environmental Information Center	Jacobs Engineering Building--Kevil	2
R. Ferguson	Bechtel Jacobs Company--Oak Ridge	3
D. L. Jones	Foster Wheeler--Oak Ridge	4
S. A. Polston	LMUS--Paducah	5
G. Smith	MK-Ferguson--Paducah	6
J. J. Tarantino	CDM Federal--Kevil	7
M. Tiami	USEC--Bethesda	8
J. D. Young	CH2M Hill--Kevil	10
W. F. Redfield	SMS--Paducah	11
R. H. Blumenfeld	DOE--Oak Ridge	12
N. L. Carnes	DOE--Oak Ridge	13
D. W. Dollins	DOE--Paducah	14
C. R. Miskelley	DOE--Oak Ridge	15
M. E. Redfield	DOE--Paducah	16
T. T. Slack	DOE--Oak Ridge	17
R. C. Sleeman	DOE--Oak Ridge	18
D. Williams	DOE--Headquarters	19
M. Wilson	DOE--Oak Ridge	20
C. R. Froede, Jr.	EPA--Atlanta	21
L. H. Neville	EPA--Atlanta	22
C. B. Warren	EPA--Atlanta	23
R. H. Daniell	State of Kentucky--Frankfort	24
R. McDowell	State of Kentucky--Frankfort	25
T. M. Taylor	State of Kentucky--Frankfort	26
J. A. Volpe	State of Kentucky--Frankfort	27
M. Williams	State of Kentucky--Paducah	28
D. R. Guminski	LMES--Paducah	29
A. L. Harrington	LMES--Paducah	30
C. S. Jones	LMES--Paducah	31
W. N. Lingle	Bechtel Jacobs Company--Oak Ridge	32
B. J. Montgomery	LMES--Paducah	33
J. W. Morgan	LMES--Paducah	34
P. F. Clay	Bechtel Jacobs Company--Oak Ridge	35
EMEF DMC PAD	Bechtel Jacobs Company--Paducah	36
J. D. Sheppard	DOE--Paducah	37
P. A. Gourieux	Bechtel Jacobs Company--Paducah	38
M. J. Howell	DOE--Paducah	39
J. L. Crane	EPA--Atlanta	41
B. E. Phillips	SAIC--Kevil	42

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<u>Manual Holder</u>	<u>Location</u>	<u>Manual No.</u>
P. Willison	Bechtel jacobs Company – Oak Ridge	43
M. Tagoe	Bechtel Jacobs Company – Paducah	44

